Diva Server for Windows v8.3

Reference Guide

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CHAPTER 1

About This Online Guide

How to use this online guide

- To view a section, click the corresponding blue underlined phrase in the table below.
- To view a topic that contains further information, click the corresponding blue underlined phrases in this guide.
- You may wish to print out the pages required for installing the drivers.

Structure of this guide

This guide provides a detailed description of how to install and configure Diva Server for Windows, and how to troubleshoot your ISDN connection.

This guide is structured as follows:

Section	Contents
About Diva Server for Windows	Diva Server for Windows features, supported hardware, and requirements for software installation
Software Installation	Installing the basic drivers, updating drivers or changing configuration using Diva Server Setup
Software Configuration	Starting a configuration with installed hardware or performing a manual configuration
Dial-Up Networking and RAS Administration	RAS client and RAS server setup
Uninstalling	Uninstalling Diva Server adapters in the Device Manager or with Diva Server Uninstall
Management Tools	Tools available for monitoring active connections and getting statistic information on all connections
Maintenance Tools	Debugging tools available for locating installation errors or connection problems
Features	Overview of the functions provided by the various interfaces
Customer Services	Information on how to obtain technical support for Eicon Networks products.

CHAPTER 2

About Diva Server for Windows

Diva Server for Windows enables you to use your Eicon Diva Server adapter with Microsoft Windows 2000, Windows XP, or Windows Server 2003. Diva Server for Windows provides modem emulation, connectivity over ISDN or channelized T1 lines via the Remote Access Service (RAS) of Windows 2000, Windows XP, or Windows Server 2003, a CAPI interface for ISDN-based applications, and a TAPI interface for telephony-based applications. Diva Server for Windows also provides an SNMP agent to support the Microsoft Windows implementation of the Simple Network Management Protocol (SNMP).

Features

The list below provides an overview of the features supported by Diva Server for Windows. For information on further supported features of Diva Server adapters, refer to the Features section at the end of this reference guide.

General Features

- Support for ISDN basic rate interface (BRI), ISDN primary rate interface (PRI), and for the channelized T1 interface
- Support for fractional PRI, E1 and T1 lines
- Support for multiple PRI, E1 and T1 lines
- Support for multiple CPU operating systems
- Support for analog lines
- Automatic Diva Server adapter detection
- Support for ISDN lines with a transfer rate of 64 kbps or 56 kbps (for example USA)
- Support for channelized T1 lines with a transfer rate of 56 kbps (see Channelized T1 (robbed bit signaling) on page 13)
- Support for unchannelized lines with a transfer rate of 64 kbps or 56 kbps
- Support for R2 signaling E1 lines with a transfer rate of 64 kbps
- Support for up to 240 B-channels for Diva Server BRI, 4BRI, T1/PRI, and 2PRI adapters
- Support for up to 480 B-channels for Diva Server 4PRI adapters (the total amount of channels that can be used depends on the application)
- Modem connections up to 56 kbps (V.90)
- COM port (modem emulation)

- Support for CAPI-based applications through CAPI 2032.DLL and CAPI 20.DLL (32-bit and 16-bit versions) for Windows 2000, Windows XP, or Windows Server 2003
- Support for TAPI-based applications through the Diva Server Telephony Service Provider (TSP)
- Support for all known switch types (ISDN protocols)
- Support for Q-Sig protocol (see Q-Sig features on page 13)
- Additional security through support of RSA
- Interfaces: RAS WMP, modem emulation, CAPI, Diva Server TSP
- Compatible to V.22 Fast Connect™ terminals with V.22 Diva™ Fast Setup via Port driver
- M-Adapter:
  - Middleware between Diva Server adapters and interfaces (CAPI, COM port)
  - Can group several Diva Server adapters and specific lines of any Diva Server 4BRI adapter and abstract them as one adapter to the application (see 'Combined Adapter' in the Diva Server Configuration Manager Online Help (DSMain.chm)). Separate configuration of each individual line of any Diva Server 4BRI, V-2PRI, and V-4PRI adapter
- Selectable call direction for each port of a Diva Server Analog or V-Analog adapter
- Support for Windows XP Professional 64-bit and Windows Server 2003 64-bit

  Note: Diva Server for Windows - 64-bit supports RAS, CAPI, TAPI and SNMP service

  Note: Diva Server SoftIP can only be installed on 32-bit operating systems
- Diva Server V-2PRI/E1/T1 and Diva Server V-4PRI/E1/T1: Creation of a trace message in the trace file if max. operation temperature is exceeded
- Support for IP and TDM hybrid installations by using Diva Server SoftIP (v2.1 or higher enables fast data transfer using DMA (Direct Memory Access) procedures)
- Support for collecting phone number ranges or a specific number by the adapter with incoming calls
- Support for a wide range of Windows event logs. Driver and connection errors and informative messages are listed in the MOM (Microsoft Operation Manager). For a detailed description of the errors and messages see Diva Server Configuration Online Help (DSMain.chm)
- Possibility to configure either the use of call deflection or call rerouting
- Support for redirecting number emulation (for incoming calls). In this case the called party number is delivered as redirecting number to the application
- ECT Link Balance - to avoid confusion with call transfer and mutiple incoming calls, each incoming call is delivered to a seperate TEI. This feature is only valid for BRI adapters and Point-to-Multipoint

- Call Rate Limiter: Limitation of the amount of outgoing calls per second. Some switches may require limitation of calls in order to grant stability of the PSTN network

RAS features

Note: RAS is the Routing and Remote Access Service of Windows 2000, Windows XP, or Windows Server 2003.

- Connection to ISDN routers, enabling access to a remote LAN or the Internet
- Network access for PPP-compatible clients
- Connection to a Windows 2000, Windows XP, or Windows Server 2003 server from digital, analog, and mobile networks with only one telephone number
- Automatic detection of ISDN service, synchronous/asynchronous framing, and B-channel protocol of incoming calls
- Synchronous/asynchronous conversion
- Support for LAN protocols: TCP/IP, IPX/SPX, NetBIOS, NetBEUI, LAN Manager API
- Support for B-channel protocols: HDLC, X.75, V.120, V.110, PIAFS 1.0 and 2.1, modem V.34+ and V.90, fax connections, V.42/LAPM (error correction), and V.42bis compression
- Encryption, data compression, number checking, shorthold mode, callback function

Modem emulation

- COM port for 16-bit Windows applications
- TAPI-compliant pre-initialized modems:
  - Eicon Diva Analog Modem
  - Eicon Diva Fax Modem (Fax Class 1/ Fax Class 2)
  - Eicon Diva V.120 Modem (64K)
  - Eicon Diva V.120 Modem (56K)
  - Eicon Diva V.110 Modem
  - Eicon Diva X.75 Modem (64K)
  - Eicon Diva X.75 Modem (56K)
  - Eicon Diva PPP-Modem (64K)
  - Eicon Diva PPP-Modem (56K)
  - Eicon Diva X.25 Modem
  - Eicon Diva Generic Server Modem:
    - Network access for PPP-compatible clients

- Automatic detection of ISDN service, synchronous/asynchronous framing and B-channel protocol
- Synchronous/asynchronous conversion
- Encryption, data compression, number checking, shorthold mode, callback function

CAPI features

Supplementary services:

- Number identification services: MSN, DDI, SUB, CLIP, CLIR, COLP, COLR, KEY
- Call offering services: TP, CFU, CFB, CFNR
- Call completion services: CW, HOLD, ECT, CCBS, CCNR
- Charging services: AoC
- Three-party conference
- Others: User-to-user signaling

Fax and voice features

- Fax compression (MH, MR 2D coding, MMR T.6 coding) and error-correction mode (ECM)
- Fax connections up to 33,6 kbps
- Class 1 and class 2 fax interface
- Fax polling
- Extended fax
- Fax tone detection
- Reversal of fax direction
- Dynamic switching of B-channel protocols
- DTMF transmission, DTMF detection
- DTMF clamping
- Cross-board switching via interline connect (DSP-based monitor, bridge, and mixer for voice connections: supports multiline conference calls)
- Page formats: ISO A4, ISO B4, ISO A3
- Standard, fine, super-fine, and ultra-fine resolution
- Echo cancellation
- Real time protocol (RTP)

- Dynamic anti-jitter buffering
- Comfort noise generation (CNG)
- Voice activity detection (VAD)
- Support for color fax via CAPI
  - Support for JPEG format
  - Support for sending and receiving single or multi-page documents
  - Support for fallback to gray scale if remote side does not support color fax

Diva Server TSP features

- Supplementary services based on CAPI: CLIP, CLIR, COLP, COLR, HOLD, CFU, CFB, CFNR, ECT, AoC, CCBS, CCNR
- Media mode (unknown, interactive voice, automated voice)
- Wave audio format (8-bit 8 kHZ a-law, 8-bit 8 kHz µ-law, 8-bit 8 kHz PCM)
- DTMF tone generation and detection (based on CAPI)

Q-Sig features

- Support for generic Q-Sig according to ECMA and ISO (for more information see Supplementary services)
- Tests have been conducted for the various switch types (for a complete list of all supported types see Supplementary services)

Channelized T1 (robbed bit signaling)

- Trunk modes (loop, ground, and wink start)
- Tone dialing (DTMF and MF)
- Pulse dialing
- Ringer and busy tone detection
- 56 kbps transfer rate
- Call transfer

Supported Hardware

Diva Server for Windows supports the following Diva Server adapters (max. eight Analog, BRI, 4BRI, PRI, 2PRI or four 4PRI in one computer):

ISDN BRI adapters

- Diva Server 2FX
- Diva Server BRI-2M 2.0
- Diva Server 4BRI-8M 2.0
- Diva Server V-BRI-2
- Diva Server V-4BRI-8

ISDN PRI adapters

Diva Server PRI 2.0:

- Diva Server PRI-0M
- Diva Server PRI-4M
- Diva Server PRI-8M
- Diva Server PRI-30M

Diva Server PRI 3.0:

- Diva Server PRI/E1/T1-CTI
- Diva Server PRI/E1/T1-8
- Diva Server PRI/E1-30

Diva Server V-PRI:

- Diva Server V-PRI/E1-30

Diva Server PRI PCIe

- Diva Server PRI-E1/T1-CTI PCIe
- Diva Server PRI-E1-30 PCIe

Diva Server V-PRI PCIe

- Diva Server V-PRI/E1-30 PCIe

Multiport PRI adapters

- Diva Server V-2PRI/E1/T1
- Diva Server V-4PRI/E1/T1

Analog adapters

Diva Server Analog	Diva Server V-Analog
• Diva Server Analog-2P	
• Diva Server Analog-4P	• Diva Server V-Analog-4P
• Diva Server Analog-8P	• Diva Server V-Analog-8P

Requirements for software installation

For the installation of Diva Server for Windows, the following requirements have to be met:

- PC/AT-compatible computer (at least 500 MHz or higher processor with at least 500 MB RAM)
- Windows 2000, Windows XP, or Windows Server 2003 operating system
- At least 15 MB free space on the drive on which the operating system is installed
- An installed Eicon Diva Server adapter

Diva Multiport PRI adapters:

- At least 1.5 GHz or higher processor
- At least 512 MB RAM (if more adapters are installed the capacity needs to be at least 1 GB)
- Power supply with 450 W (6A with 3.3 V per Diva Server Multiport PRI adapter)

Note: Depending on the computer, a stronger power supply needs to be used.

To install your Diva Server adapter in your computer, refer to the printed installation guide that came with your Diva Server adapter or that you downloaded from the Eicon Web site.

Information on installing downloaded software

If you downloaded the Diva Server for Windows software from the Eicon Web site, please note the following:

- Extract the files to your hard disk drive. Do not change the directory structure of the extracted files.
- This manual assumes that the installation files have been copied into the directory ‘C:\Temp\ISDN’. If necessary, change the drive letter or path according to your system configuration.

CHAPTER 3

Software Installation

You should not attempt to install the software for your Diva Server adapter at the same time as the operating system. Basic driver support for most Diva Server adapters is provided by the Microsoft operating system. These Diva Server adapters are fully detected by Windows XP or Windows Server 2003, and a basic set of drivers is installed automatically. Diva Server adapters without basic driver support are detected as new hardware.The installation procedure depends on the type of Diva Server adapter and the operating system that you have:

Windows 2000

- If you are installing one of the following adapters, see Installing Diva Server adapters detected as 'New Hardware' on page 31:

  Diva Server 2FX
  Diva Server BRI-2M 2.0
  Diva Server 4BRI-8M 2.0
  Diva Server PRI 2.0 and 3.0
  Diva Server T1/PRI
  Diva Server Analog
  Diva Server PRI PCIe
  Diva Server V-BRI-2
  Diva Server V-4BRI-8
  Diva Server V-PRI
  Diva Server V-2PRI
  Diva Server V-4PRI
  Diva Server V-Analog
  Diva Server V-PRI PCIe

Windows XP

- If you are installing one of the following adapters, see Installing fully detected Diva Server adapters under Windows XP on page 19:

  Diva Server 2FX
  Diva Server BRI-2M 2.0
  Diva Server 4BRI-8M 2.0
  Diva Server PRI 2.0
  Diva Server T1/PRI

- If you are installing one of the following adapters, see Installing Diva Server adapters detected as 'New Hardware' on page 31:

  Diva Server PRI 3.0
  Diva Server PRI PCIe
  Diva Server Analog
  Diva Server V-BRI-2
  Diva Server V-4BRI-8
  Diva Server V-PRI
  Diva Server V-2PRI
  Diva Server V-4PRI
  Diva Server V-PRI PCIe
  Diva Server V-Analog

Windows Server 2003

- If you are installing one of the following adapters, see Installing fully detected Diva Server adapters under Windows Server 2003 on page 23:

  Diva Server 2FX
  Diva Server BRI-2M 2.0
  Diva Server 4BRI-8M 2.0
  Diva Server PRI 2.0
  Diva Server T1/PRI

- If you are installing one of the following adapters, see Installing Diva Server adapters detected as 'New Hardware' on page 31:

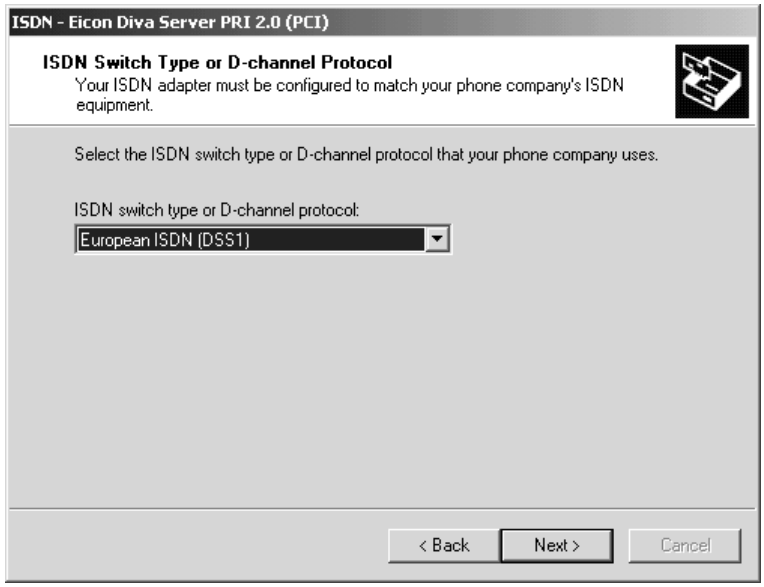
  Diva Server PRI 3.0
  Diva Server PRI PCIe
  Diva Server Analog
  Diva Server V-BRI-2
  Diva Server V-4BRI-8
  Diva Server V-PRI
  Diva Server V-2PRI
  Diva Server V-4PRI
  Diva Server V-PRI PCIe
  Diva Server V-Analog

Installing fully detected Diva Server adapters under Windows XP

1. After you have installed your Diva Server adapter as described in the printed installation guide that came with your adapter or that you downloaded from the Eicon Web site, start your computer.

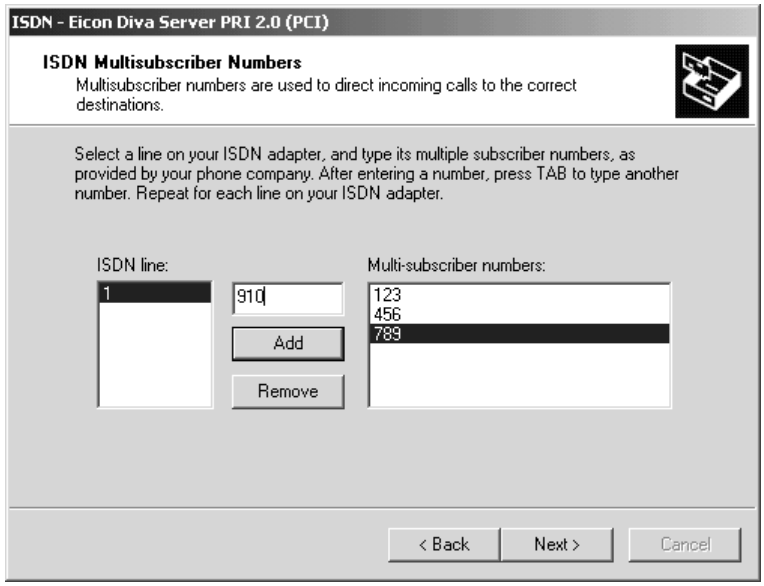
   Note: You must log on with administrator rights to install Diva Server for Windows.

2. Windows detects the Diva Server adapter.
3. The ‘Found New Hardware Wizard’ is displayed. Click ‘Next’ to continue.
4. In the ‘ISDN Switch Type or D-channel Protocol’ box, select the D-channel protocol (switch type) as specified by your ISDN service provider, for example European ISDN (DSS1).


ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Switch Type or D-channel Protocol
Your ISDN adapter must be configured to match your phone company's ISDN equipment.
Select the ISDN switch type or D-channel protocol that your phone company uses.
ISDN switch type or D-channel protocol:
European ISDN (DSS1)
< Back
Next >
Cancel

Click ‘Next’.

5. The ‘ISDN Multisubscriber Numbers’ box is displayed:

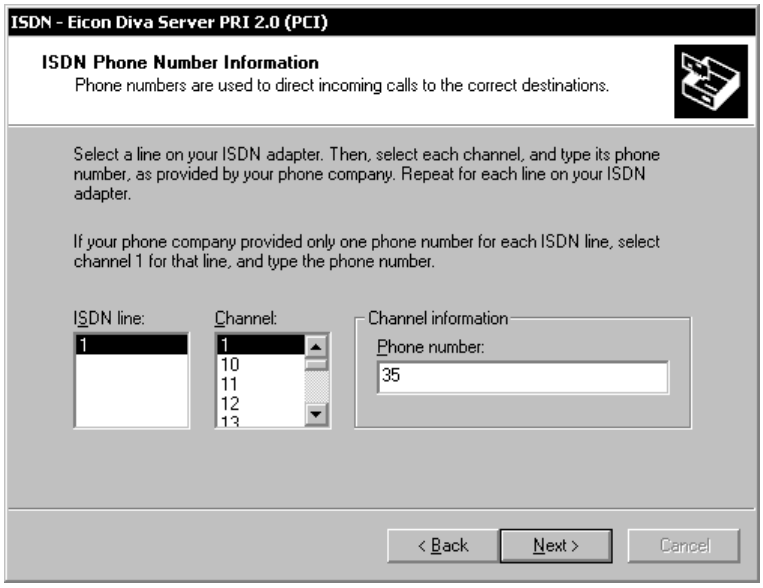

ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Multisubscriber Numbers
Multisubscriber numbers are used to direct incoming calls to the correct destinations.
Select a line on your ISDN adapter, and type its multiple subscriber numbers, as provided by your phone company. After entering a number, press TAB to type another number. Repeat for each line on your ISDN adapter.
ISDN line:
1
910
Add
Remove
Multi-subscriber numbers:
123
456
789
< Back
Next >
Cancel

You may enter the MSNs or the extension range that you want to assign to RAS here. It is recommended to assign the MSNs or extension range later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Click ‘Next’.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

6. If you are using a North American switch type and a Diva Server PRI adapter, the ‘ISDN Phone Number Information’ box is displayed:

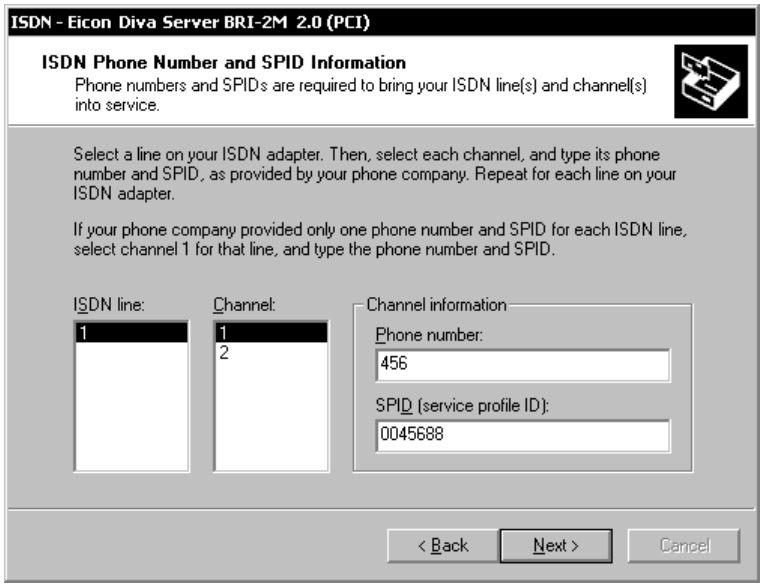

ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Phone Number Information
Phone numbers are used to direct incoming calls to the correct destinations.
Select a line on your ISDN adapter. Then, select each channel, and type its phone number, as provided by your phone company. Repeat for each line on your ISDN adapter.
If your phone company provided only one phone number for each ISDN line, select channel 1 for that line, and type the phone number.
ISDN line:
1
Channel:
1
10
11
12
13
Channel information
Phone number:
35
< Back
Next >
Cancel

You may enter the phone numbers that you want to assign to RAS here. It is recommended to assign the phone numbers later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Click ‘Next’.

Note: If you configure and assign no phone numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

7. If you are using a North American switch type and a Diva Server BRI adapter, the ‘ISDN Phone Number and SPID Information’ box is displayed:


ISDN - Eicon Diva Server BRI-2M 2.0 (PCI)
ISDN Phone Number and SPID Information
Phone numbers and SPIDs are required to bring your ISDN line(s) and channel(s) into service.
Select a line on your ISDN adapter. Then, select each channel, and type its phone number and SPID, as provided by your phone company. Repeat for each line on your ISDN adapter.
If your phone company provided only one phone number and SPID for each ISDN line, select channel 1 for that line, and type the phone number and SPID.
ISDN line:
1
Channel:
1
2
Channel information
Phone number:
456
SPID (service profile ID):
0045688
< Back
Next >
Cancel

You may enter the phone number and SPID (Service Profil ID) that you want to assign to RAS here. It is recommended to assign the phone numbers later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Click ‘Next’.

Note: If you configure and assign no phone numbers at all, neither in the ISDN wizard nor later on in the Configuration Manager, RAS accepts all incoming calls.

8. In the ‘Found New Hardware Wizard’, click ‘Finish’.

The standard Windows XP drivers for your Diva Server adapter are installed. To be able to use all features of Diva Server for Windows, you must update the drivers with the software that is provided on your Diva Server Software Suite CD-ROM or that you downloaded from the Eicon Networks Web site. To update the drivers, see To update the drivers: on page 23.

Installing fully detected Diva Server adapters under Windows Server 2003

1. After you have installed your Diva Server adapter as described in the printed installation guide that came with your adapter or that you downloaded from the Eicon Web site, start your computer.

   Note: You must log on with administrator rights to install Diva Server for Windows.

2. Windows detects the Diva Server adapter.
3. The 'Found New Hardware Wizard' is displayed. Click 'Finish' to complete the process.

The standard Windows Server 2003 drivers for your Diva Server adapter are installed. To be able to use all features of Diva Server for Windows, you must update the drivers with the software that is provided on your Diva Server Software Suite CD-ROM or that you downloaded from the Eicon Networks Web site. To update the drivers, follow the instructions below.

Note: Assign the MSNs, extension range, phone numbers, or SPIDs later on in the Diva Server Configuration Manager after you installed the Diva Server for Windows software.

To update the drivers:

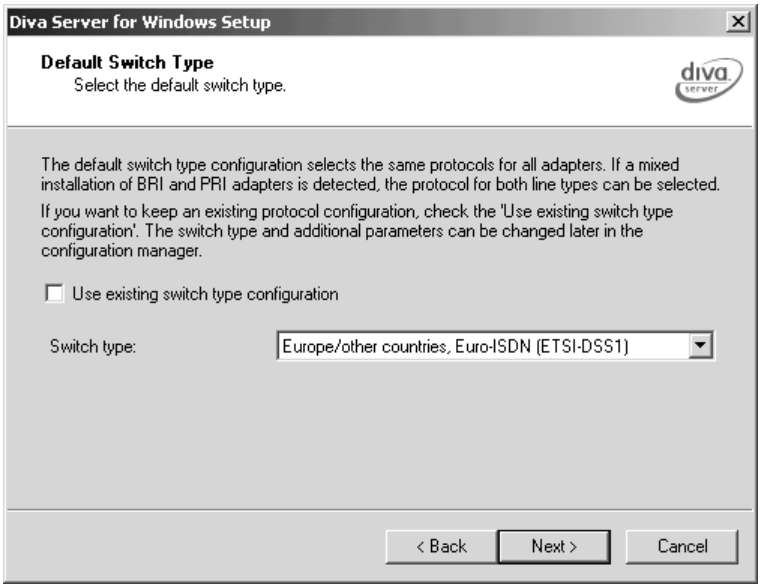
Note: If multiple adapters are installed, the wizard will be visible only once for each update or configuration of the software. The configured parameters correspond to all adapters.

1. From the Windows task bar, click 'Start > Run'.
2. Type the path to the update file:
   - Insert your Diva Server CD-ROM into the CD-ROM drive and enter the following path:
     `D:\DRIVER\i386\ENGLISH\SETUP.EXE`
     (where D: is your CD-ROM drive letter)
   - Or enter the path to the update file on the hard disk, e.g.
     `C:\Temp\ISDN`
     (where C: is the hard disk drive letter)
3. In the welcome dialog box, click 'Next' to start updating the drivers for all installed Diva Server adapters.
4. If you installed an adapter that is not supported with this software version, the 'Unsupported Adapter' box appears. Download the drivers for the unsupported adapters and continue with the installation of the supported adapters. For supported adapters see Supported Hardware on page 14. This software version only supports the adapters listed there.

5. If you are updating the drivers from the Diva Server Software Suite CD-ROM, the ‘License Agreement’ box appears. Read the license agreement carefully. If you accept it, select ‘I accept the above license agreement’ and click ‘Next’. If you do not accept it, click ‘Cancel’ to exit the process. You need to accept the license agreement to be able to update the drivers.

6. If you have a Diva Server ISDN adapter installed, select the D-channel protocol for your configuration in the ‘Default Switch Type’ box.

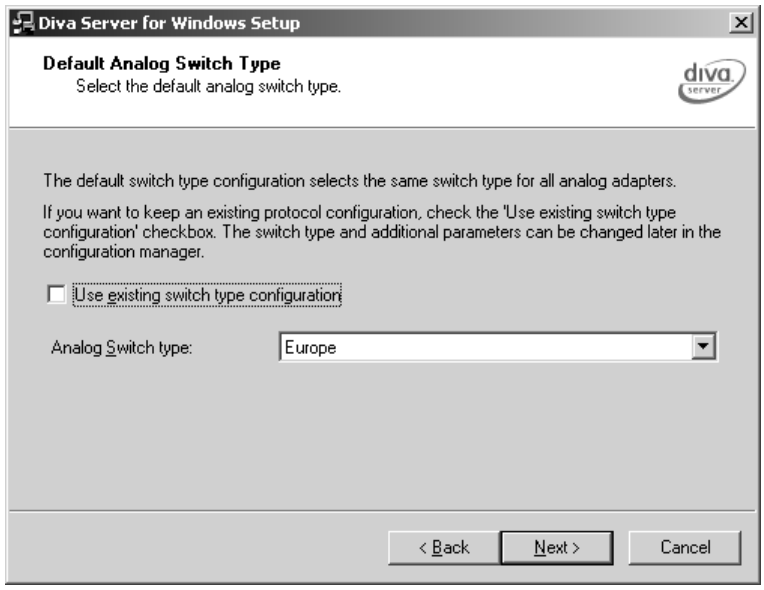
   If you have a Diva Server Analog adapter installed, click ‘Next’.


Diva Server for Windows Setup
Default Switch Type
Select the default switch type.
diva server
The default switch type configuration selects the same protocols for all adapters. If a mixed installation of BRI and PRI adapters is detected, the protocol for both line types can be selected.
If you want to keep an existing protocol configuration, check the 'Use existing switch type configuration'. The switch type and additional parameters can be changed later in the configuration manager.
Use existing switch type configuration
Switch type:
Europe/other countries, Euro-ISDN (ETSI-DSS1)
< Back
Next >
Cancel

Note: If you are changing the configuration and you want to use the same switch type as you selected during the update, select ‘Use existing switch type configuration’.

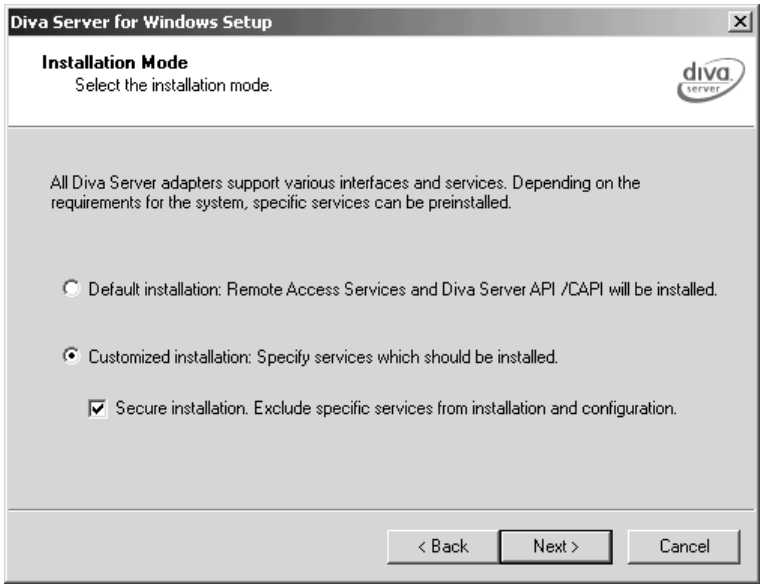
Click ‘Next’.

7. If you have a Diva Server Analog adapter installed, the ‘Default Analog Switch Type’ box appears. In the ‘Analog Switch Type’ box, select the region where you use your adapter.


Diva Server for Windows Setup
Default Analog Switch Type
Select the default analog switch type.
diva server
The default switch type configuration selects the same switch type for all analog adapters.
If you want to keep an existing protocol configuration, check the 'Use existing switch type configuration' checkbox. The switch type and additional parameters can be changed later in the configuration manager.
Use existing switch type configuration
Analog Switch type:
Europe
< Back
Next >
Cancel

Note: If you are changing the configuration and you want to use the same switch type as you selected during the update, select ‘Use existing switch type configuration’.

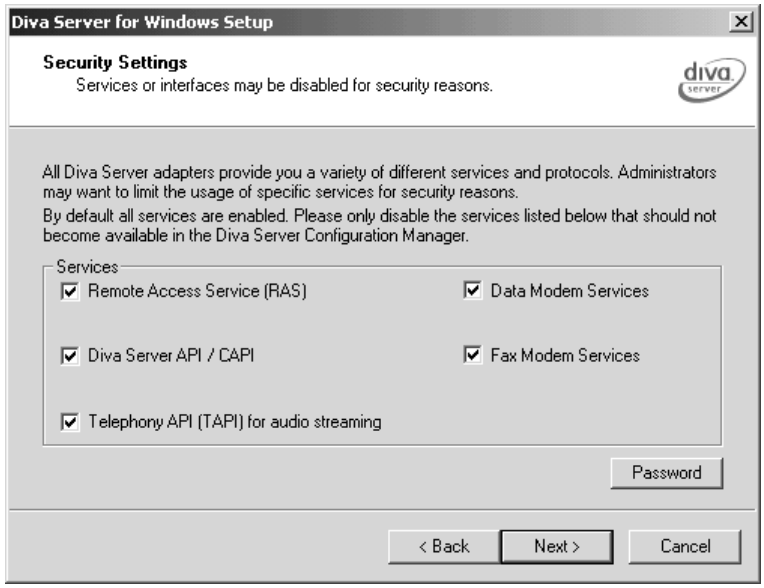
8. In the ‘Installation Mode’ box, select if you want to install the adapter in default mode, customized mode, or secure mode.


Diva Server for Windows Setup
Installation Mode
Select the installation mode.
diva server
All Diva Server adapters support various interfaces and services. Depending on the requirements for the system, specific services can be preinstalled.
Default installation: Remote Access Services and Diva Server API /CAPI will be installed.
Customized installation: Specify services which should be installed.
Secure installation. Exclude specific services from installation and configuration.
< Back
Next >
Cancel

- If you select ‘Default installation’, the Remote Access Service and CAPI are installed. Click ‘Next’ and go to step 13 on page 29 to continue with the installation.
- If you select ‘Customized installation’, you can specify the services that are to be supported. Click ‘Next’ and go to step 10 on page 28 to continue with the installation.
- If you select ‘Secure installation’, you can set security settings for the various services and interfaces. Additionally, you can set a password to prevent that unauthorized users change the settings. Click ‘Next’ and proceed with the following step.

Note: The services that you deactivate during the installation are not available in the Diva Server Configuration Manager. You have the opportunity to use these services if you activate them in the Diva Server Configuration Assistant. See Changing the configuration: on page 30.

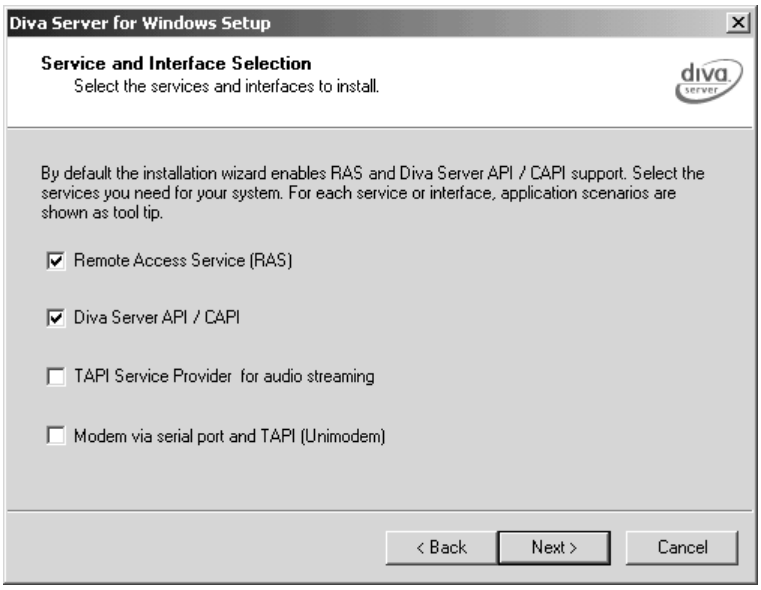
9. In the ‘Security Settings’ box, all possible services and interfaces are selected. Disable the services or interfaces you do not want to use for security reasons. You can set a password to prevent unauthorized users from changing the settings.


Diva Server for Windows Setup
Security Settings
Services or interfaces may be disabled for security reasons.
diva server
All Diva Server adapters provide you a variety of different services and protocols. Administrators may want to limit the usage of specific services for security reasons.
By default all services are enabled. Please only disable the services listed below that should not become available in the Diva Server Configuration Manager.
Services
Remote Access Service (RAS)
Data Modem Services
Diva Server API / CAPI
Fax Modem Services
Telephony API (TAPI) for audio streaming
Password
< Back
Next >
Cancel

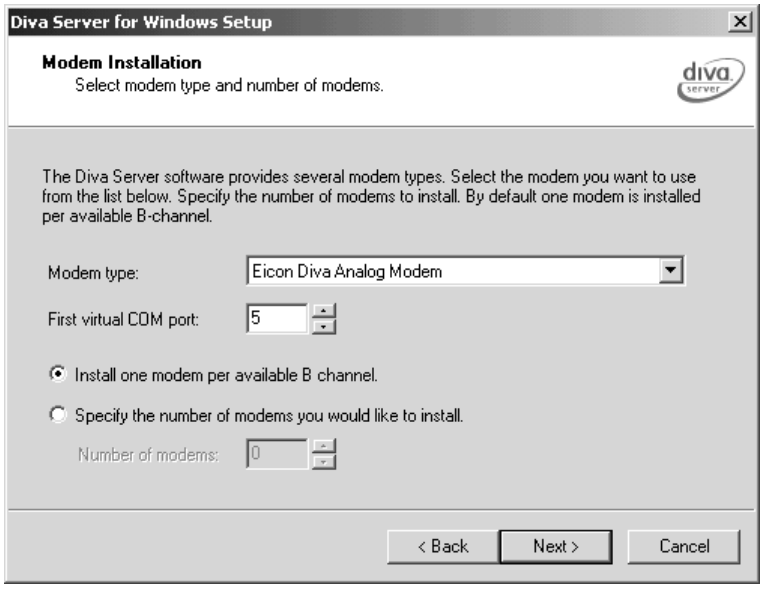
You need to deactivate at least one service. If all services need to be available, you have to configure them, see step 10 on page 28.

Click ‘Next’.

10. In the ‘Services and Interface Selection’ box, select the services and interfaces you need for your system. If you selected ‘Secure Installation’, the services and interfaces you disabled in step 9 on page 27 cannot be selected anymore. Click ‘Next’.

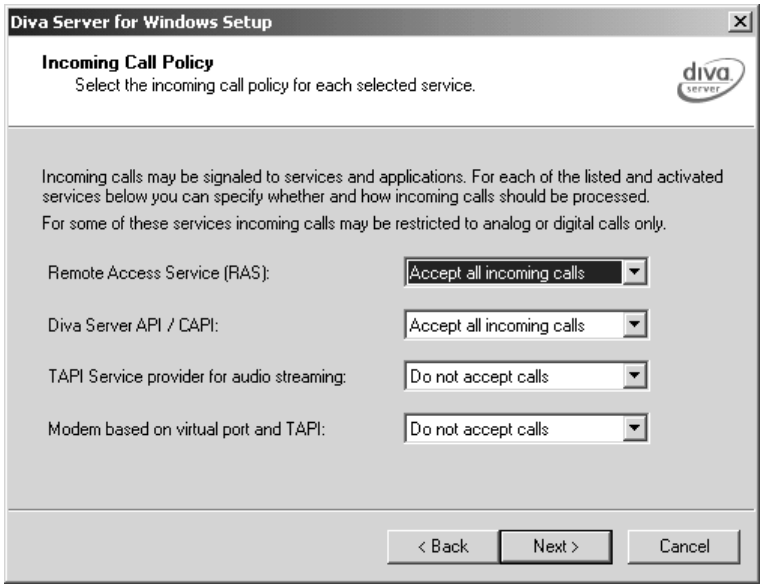

Diva Server for Windows Setup
Service and Interface Selection
Select the services and interfaces to install.
By default the installation wizard enables RAS and Diva Server API / CAPI support. Select the services you need for your system. For each service or interface, application scenarios are shown as tool tip.
Remote Access Service (RAS)
Diva Server API / CAPI
TAPI Service Provider for audio streaming
Modem via serial port and TAPI (Unimodem)
< Back
Next >
Cancel

11. If you selected the service ‘Modem via serial port and TAPI (Unimodem)’, the ‘Modem Installation’ box appears.


Diva Server for Windows Setup
Modem Installation
Select modem type and number of modems.
The Diva Server software provides several modem types. Select the modem you want to use from the list below. Specify the number of modems to install. By default one modem is installed per available B-channel.
Modem type:
Eicon Diva Analog Modem
First virtual COM port:
5
Install one modem per available B channel.
Specify the number of modems you would like to install.
Number of modems:
0
< Back
Next >
Cancel

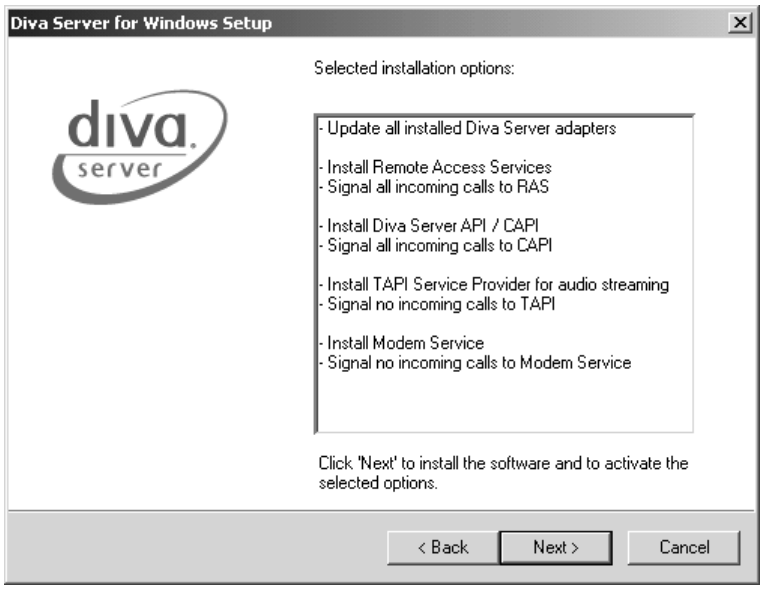
Select the virtual modem you want to use. If you do not want to use one modem per B-channel, select ‘Specify the number of modems to install’ and enter the number of modems. Click ‘Next’.

12. In the ‘Incoming Call Policy’ box, select how to handle incoming calls.


Diva Server for Windows Setup
Incoming Call Policy
Select the incoming call policy for each selected service.
Incoming calls may be signaled to services and applications. For each of the listed and activated services below you can specify whether and how incoming calls should be processed.
For some of these services incoming calls may be restricted to analog or digital calls only.
Remote Access Service (RAS):
Accept all incoming calls
Diva Server API / CAPI:
Accept all incoming calls
TAPI Service provider for audio streaming:
Do not accept calls
Modem based on virtual port and TAPI:
Do not accept calls
< Back
Next >
Cancel

Click ‘Next’.

13. In the displayed dialog box, the selected options are listed.


Diva Server for Windows Setup
Selected installation options:
- Update all installed Diva Server adapters
- Install Remote Access Services
- Signal all incoming calls to RAS
- Install Diva Server API / CAPI
- Signal all incoming calls to CAPI
- Install TAPI Service Provider for audio streaming
- Signal no incoming calls to TAPI
- Install Modem Service
- Signal no incoming calls to Modem Service
Click 'Next' to install the software and to activate the selected options.
< Back
Next >
Cancel

Click ‘Back’ if you need to change the settings. Click ‘Next’ to copy the appropriate files to your system.

Note: If you are installing a Beta version of the Diva Server software, a message might appear, warning you that the software has not been tested with Windows. Continue with the installation.

This message indicates only that the Diva Server for Windows software does not yet have Microsoft certification. This does not prevent a correct installation of the software. Official final releases of Diva Server for Windows Software are Microsoft certified and this message does not appear.

14. When the copy process is complete, click ‘Finish’ to complete the update.

    Note: Depending on your system configuration, you are prompted to restart your computer. Make sure that the ‘Restart your computer’ option is selected to restart it after the update is complete.

Diva Server for Windows Setup
Complete Diva Server for Windows Setup
diva server
Update or install of all installed Diva Server adapters is now complete.
To configure the software use the 'Diva Server Configuration Manager' from the start menu.
Before using this software you must restart your computer.
Restart your computer
< Back
Finish
Cancel

You can now open the Diva Server Configuration Manager to add components to your Diva Server for Windows software and configure them.

See Configuration with installed hardware on page 40.

Changing the configuration:

If you have already updated the drivers and you need to change the configuration:

1. Click ‘Start > Programs > Diva Server for Windows > Diva Server Configuration Wizard’. The ‘Diva Server Configuration Wizard’ box appears. If you did not set a password during the update, click ‘Next’. If you set a password, enter it, and then click ‘Next’.

   Note: If you change the configuration, existing settings will be overwritten.

2. Proceed as described in step 6 on page 24.

Installing Diva Server adapters detected as ‘New Hardware’

The installation procedure of Diva Server adapters detected as ‘New Hardware’ depends on your operating system:

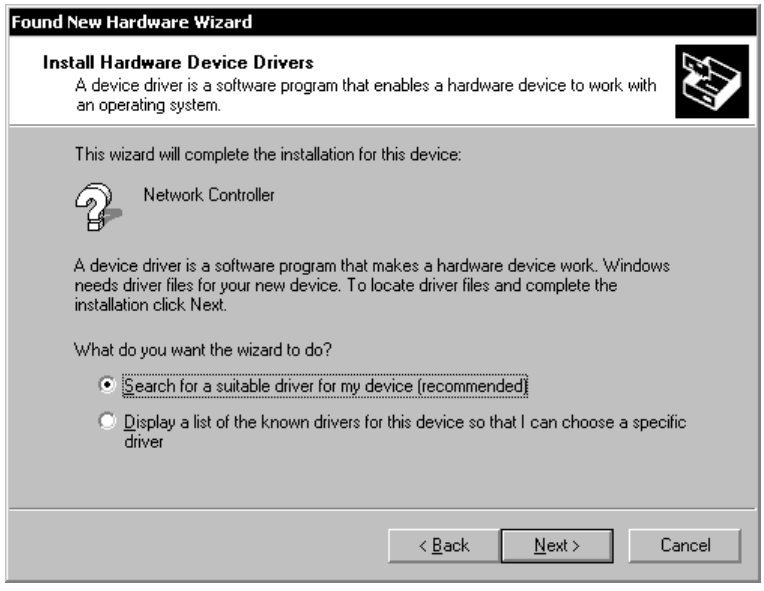
- If you are installing the Diva Server adapter under Windows 2000, see To install the Diva Server adapter under Windows 2000: below.
- If you are installing the Diva Server adapter under Windows XP or Windows Server 2003, see To install the Diva Server adapter under Windows XP and Windows Server 2003: on page 36.

To install the Diva Server adapter under Windows 2000:

1. After you have installed your Diva Server adapter as described in the printed installation guide that came with your adapter or that you downloaded from the Eicon Web site, start your computer.

   Note: You must log on with administrator rights to install Diva Server for Windows.

2. Windows 2000 detects the new hardware and starts the ‘Found New Hardware Wizard’.
3. In the welcome dialog box, click ‘Next’.
4. In the ‘Install Hardware Device Drivers’ box, select ‘Search for a suitable driver for my device (recommended)’.


Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
Network Controller
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

Click ‘Next’.

5. In the ‘Locate Driver Files’ box, select ‘Specify a location’. Disable all other options.

Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
Network Controller
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

Click ‘Next’.

6. In the displayed dialog box enter the path to the installation files:

   - Insert your Diva Server Software Suite CD-ROM into the CD-ROM drive and enter the following path:

     `D:\DRIVER\i386\ENGLISH`
     (where D: is your CD-ROM drive letter).
   - Or enter the path to the installation file on the hard disk, for example:

     `C:\Temp\ISDN`
     (where C: is the hard disk drive letter).

   Click ‘OK’.

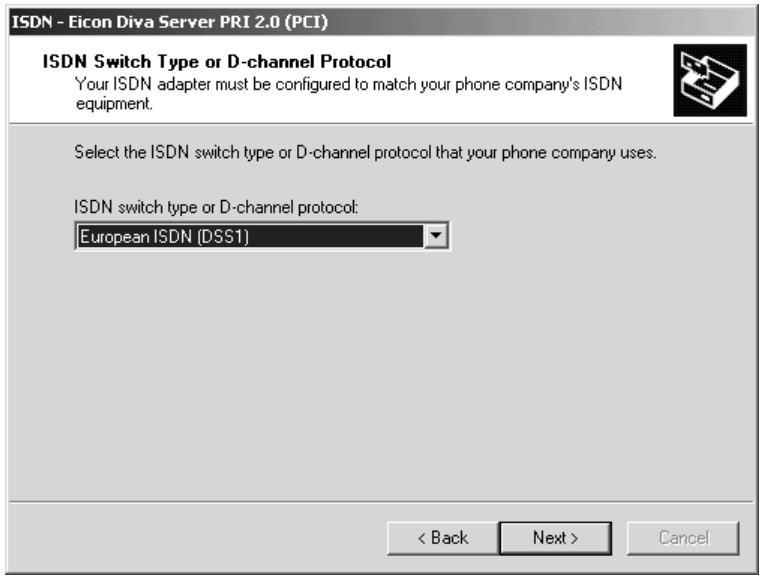
7. In the ‘Driver Files Search Results’ box, verify that Windows 2000 has found the appropriate drivers.

   Click ‘Next’ to continue the installation.

   Note: If you are installing a Beta version of the Diva Server software, a message might appear warning you that the software has not been tested with Windows. This message indicates only that the Diva Server for Windows software does not yet have Microsoft certification. Continue with the installation as this does not prevent a correct installation of the software.
   Official final releases of Diva Server for Windows Software are Microsoft certified and this message does not appear.

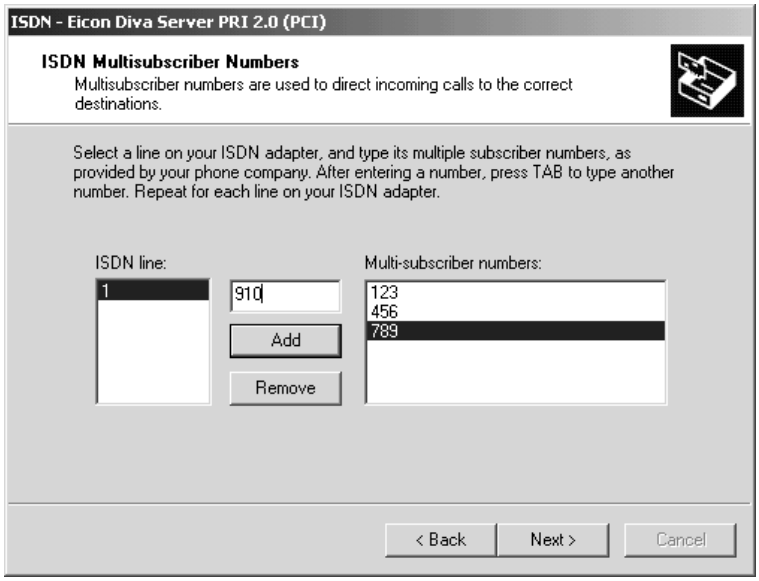
8. If you have a Diva Server Analog adapter installed, go to step 13 on page 35 to continue with the installation.

9. In the ‘ISDN Switch Type or D-channel Protocol’ box, select the switch type as specified by your ISDN service provider, for example European ISDN (DSS1).


ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Switch Type or D-channel Protocol
Your ISDN adapter must be configured to match your phone company's ISDN equipment.
Select the ISDN switch type or D-channel protocol that your phone company uses.
ISDN switch type or D-channel protocol:
European ISDN (DSS1)
< Back
Next >
Cancel

Click ‘Next’.

10. The ‘ISDN Multisubscriber Numbers’ box is displayed:

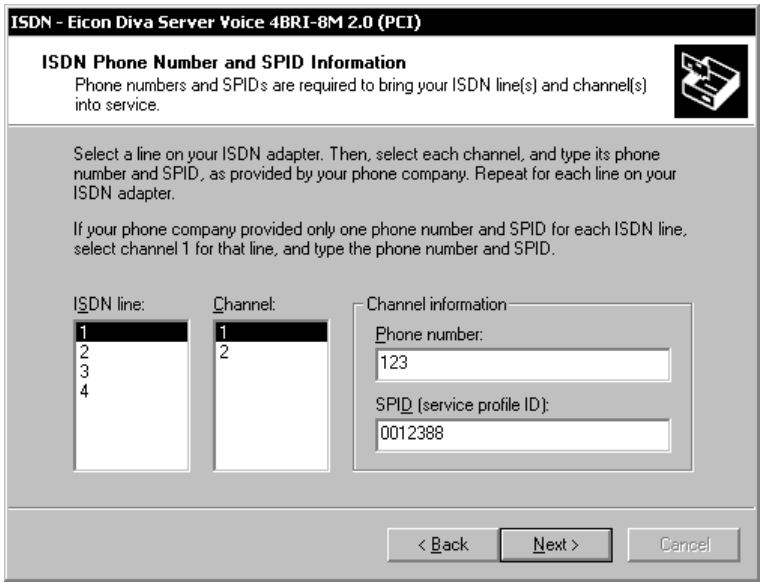

ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Multisubscriber Numbers
Multisubscriber numbers are used to direct incoming calls to the correct destinations.
Select a line on your ISDN adapter, and type its multiple subscriber numbers, as provided by your phone company. After entering a number, press TAB to type another number. Repeat for each line on your ISDN adapter.
ISDN line:
1
910
Add
Remove
Multi-subscriber numbers:
123
456
789
< Back
Next >
Cancel

You may enter the MSNs or the extension range that you want to assign to RAS here. It is recommended to assign the MSNs or extension range later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

Click ‘Next’.

11. If you are using a North American switch type and a Diva Server BRI adapter, the ‘ISDN Phone Number and SPID Information’ box is displayed:

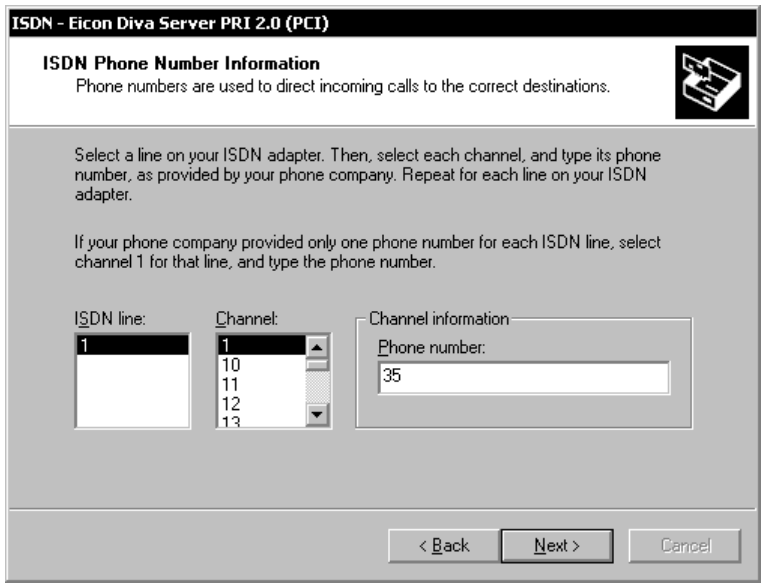

ISDN - Eicon Diva Server Voice 4BRI-8M 2.0 (PCI)
ISDN Phone Number and SPID Information
Phone numbers and SPIDs are required to bring your ISDN line(s) and channel(s) into service.
Select a line on your ISDN adapter. Then, select each channel, and type its phone number and SPID, as provided by your phone company. Repeat for each line on your ISDN adapter.
If your phone company provided only one phone number and SPID for each ISDN line, select channel 1 for that line, and type the phone number and SPID.
ISDN line:
1
2
3
4
Channel:
1
2
Channel information
Phone number:
123
SPID (service profile ID):
0012388
< Back
Next >
Cancel

You may enter the phone number and SPID (Service Profil ID) that you want to assign to RAS here. It is recommended to assign the MSNs or extension range later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

Click ‘Next’.

12. If you are using a North American switch type and a Diva Server PRI adapter, the ‘ISDN Phone Number Information’ box is displayed:


ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Phone Number Information
Phone numbers are used to direct incoming calls to the correct destinations.
Select a line on your ISDN adapter. Then, select each channel, and type its phone number, as provided by your phone company. Repeat for each line on your ISDN adapter.
If your phone company provided only one phone number for each ISDN line, select channel 1 for that line, and type the phone number.
ISDN line:
Channel:
Channel information
Phone number:
1
1
10
11
12
13
35
< Back
Next >
Cancel

You may enter the phone numbers that you want to assign to RAS here. It is recommended to assign the phone numbers later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

Click ‘Next’.

13. In the displayed dialog box, click ‘Finish’ to complete the installation.
14. Restart your computer.

You can now open the Diva Server Configuration Manager to add components to your Diva Server for Windows software and configure them.

See Configuration with installed hardware on page 40.

To install the Diva Server adapter under Windows XP and Windows Server 2003:

1. After you have installed your Diva Server adapter as described in the printed installation guide that came with your adapter or that you downloaded from the Eicon Web site, start your computer.

   Note: You must log on with administrator rights to install Diva Server for Windows.

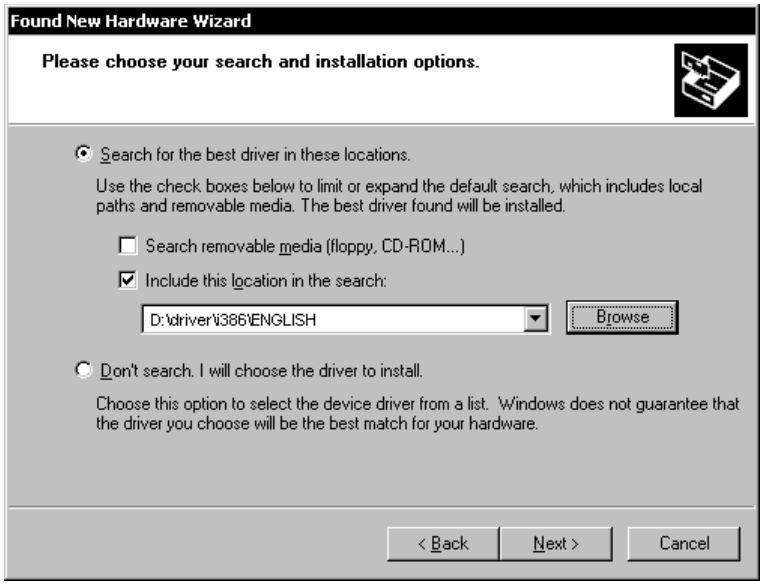
2. Windows XP detects the new hardware and starts the 'Found New Hardware Wizard'.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Network Controller
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

   Select 'Install from a list or specific location (Advanced)'.

   Click 'Next'.

3. In the displayed dialog box, select ‘Search for the best driver in these locations’.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
D:\driver\i386\ENGLISH
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Select ‘Include this location in the search’. Disable all other search options.

Enter the path to the installation files:

- Insert your Diva Server Software Suite CD-ROM into the CD-ROM drive and enter the following path:

  `D:\DRIVER\i386\ENGLISH`
  (where D: is your CD-ROM drive letter).

- Or enter the path to the installation file on the hard disk, for example

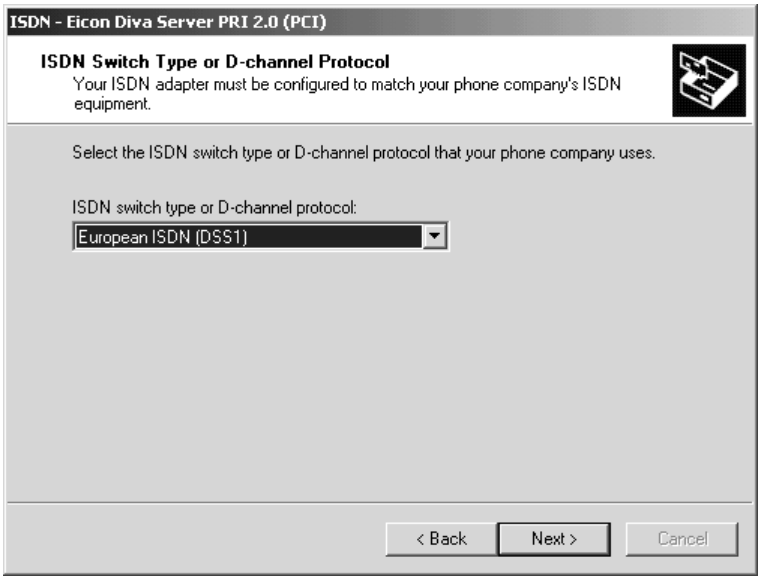
  `C:\Temp\ISDN`
  (where C: is the hard disk drive letter).

Click ‘Next’ to install the drivers.

Note: If you are installing a Beta version of the Diva Server software, a message might appear warning you that the software has not been tested with Windows. This message indicates only that the Diva Server for Windows software does not yet have Microsoft certification. Continue with the installation as this does not prevent a correct installation of the software.
Official final releases of Diva Server for Windows Software are Microsoft certified and this message will not appear.

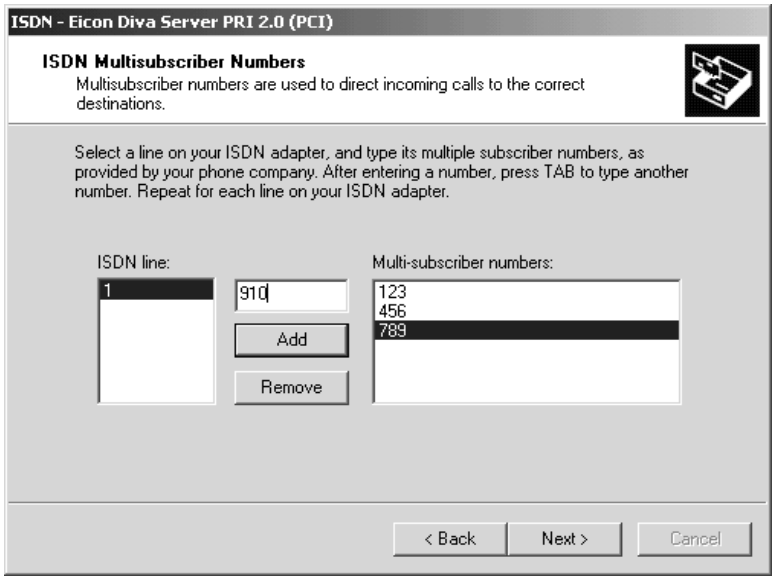
4. If you have a Diva Server Analog adapter installed go to step 8 on page 39 to continue with the installation.

5. In the ‘ISDN Switch Type or D-channel Protocol’ box, select the switch type as specified by your ISDN service provider, for example European ISDN (DSS1).


ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Switch Type or D-channel Protocol
Your ISDN adapter must be configured to match your phone company's ISDN equipment.
Select the ISDN switch type or D-channel protocol that your phone company uses.
ISDN switch type or D-channel protocol:
European ISDN (DSS1)
< Back
Next >
Cancel

Click ‘Next’.

6. The ‘ISDN Multisubscriber Numbers’ box is displayed:

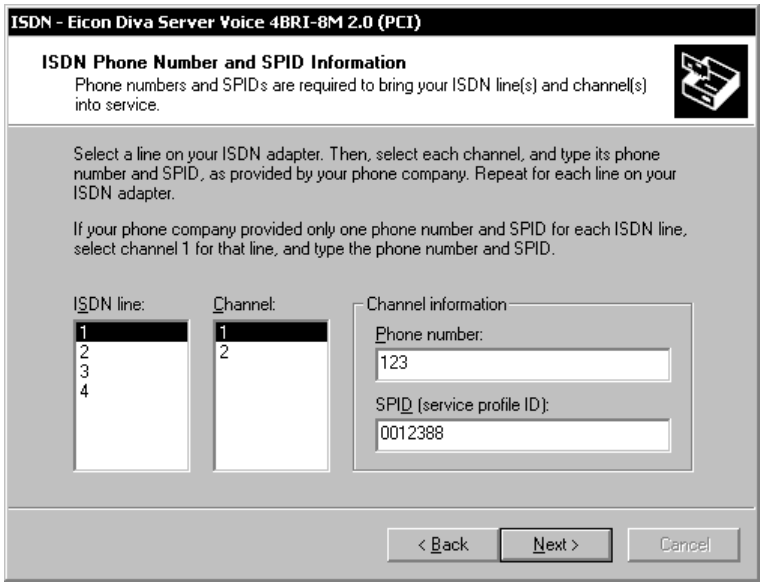

ISDN - Eicon Diva Server PRI 2.0 (PCI)
ISDN Multisubscriber Numbers
Multisubscriber numbers are used to direct incoming calls to the correct destinations.
Select a line on your ISDN adapter, and type its multiple subscriber numbers, as provided by your phone company. After entering a number, press TAB to type another number. Repeat for each line on your ISDN adapter.
ISDN line:
1
910
Add
Remove
Multi-subscriber numbers:
123
456
789
< Back
Next >
Cancel

You may enter the MSNs or the extension range that you want to assign to RAS here. It is recommended to assign the MSNs or extension range later on in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

Click ‘Next’.

7. If you are using a North American switch type and a Diva Server BRI adapter, the ‘ISDN Phone Number and SPID Information’ box is displayed:


ISDN - Eicon Diva Server Voice 4BRI-8M 2.0 (PCI)
ISDN Phone Number and SPID Information
Phone numbers and SPIDs are required to bring your ISDN line(s) and channel(s) into service.
Select a line on your ISDN adapter. Then, select each channel, and type its phone number and SPID, as provided by your phone company. Repeat for each line on your ISDN adapter.
If your phone company provided only one phone number and SPID for each ISDN line, select channel 1 for that line, and type the phone number and SPID.
ISDN line:
1
2
3
4
Channel:
1
2
Channel information
Phone number:
123
SPID (service profile ID):
0012388
< Back
Next >
Cancel

You may enter the phone number and SPID (Service Profile ID) that you want to assign to RAS here. It is recommended to assign the phone number and SPID in the Diva Server Configuration Manager because it provides a complete overview of the number configuration.

Note: If you configure and assign no ISDN numbers at all, neither in the ISDN wizard nor later on in the Diva Server Configuration Manager, RAS accepts all incoming calls.

Click ‘Next’.

8. In the displayed dialog box, click ‘Finish’ to complete the installation.
9. If prompted, restart your computer.

You can now open the Diva Server Configuration Manager to add components to your Diva Server for Windows software and configure them.

See Configuration with installed hardware on page 40.

CHAPTER 4

Software Configuration

Configuration with installed hardware

After you installed your Diva Server adapter and the adapter drivers as described in Software Installation on page 17, you can start the Diva Server Configuration Manager:

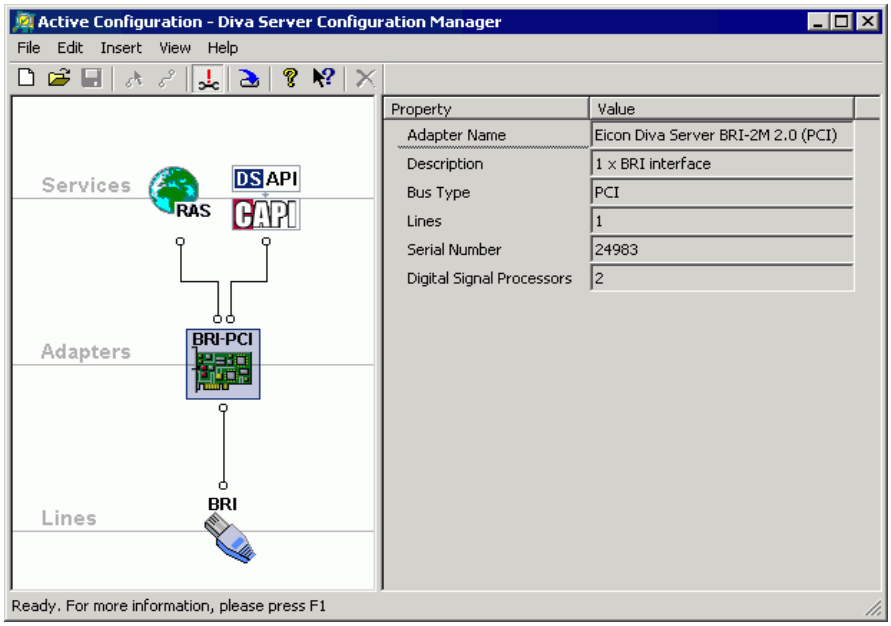
1. Click ‘Start > Programs > Diva Server for Windows > Diva Server Configuration Manager’.
2. The Configuration Manager displays the configuration you chose during the software installation:
   - The detected Diva Server adapter is installed.
   - The adapter is assumed to be connected to a corresponding ISDN BRI, PRI, or analog line.
   - Line properties are either set by default, the parameters you set under Windows 2000 and Windows XP in the Windows ISDN wizard, or the parameters you set in the Diva Server Installation Wizard.

     Note: If you plan to use ‘Direct Access Mode’ or ‘R2 Signaling E1’, change the switch type in the line properties accordingly and your PRI line changes automatically into an E1 line (see ‘Line Properties’ in the Diva Server Configuration Manager Online Help (DSMain.chm)).
   - If you installed a Diva Server adapter that was detected as ‘New Hardware’, RAS and CAPI are installed and connected to the adapter.
   - If you installed a fully detected Diva Server adapter and chose ‘Default installation’ during the driver update, RAS and CAPI are installed and connected to the Diva Server adapter.
   - If you installed a fully detected Diva Server adapter and chose ‘Customized installation’ or ‘Secure installation’ during the driver update, the services you selected are installed and connected to the Diva Server adapter.

   If you did not assign a number to RAS in Windows 2000 or Windows XP’s ISDN wizard or installed Windows Server 2003, both, RAS and CAPI, are configured to accept all incoming calls. This can cause conflicts between the two services, since both services are then listening to the same phone numbers. To avoid these conflicts, you should assign different MSN(s), ISDN numbers, or extension(s) to the services in the binding properties for each service (see ‘Binding Properties’ in the Diva Server Configuration Manager Online Help (DSMain.chm)).

When you are using a North-American protocol with a Diva Server BRI adapter, you must always assign ISDN numbers because otherwise incoming calls cannot be accepted (see ‘Binding Properties’ in the Diva Server Configuration Manager Online Help (DSMain.chm)).

See below an example of a default installation for a Diva Server BRI-2M 2.0:



3. You can now add components to your Diva Server for Windows software and configure them as described in ‘Configuring’ in the Diva Server Configuration Manager Online Help (DSMain.chm).

Creating configuration files

You can create configuration files manually, without having a Diva Server adapter installed. With the manual configuration the system administrator can create a complete configuration and save it as a configuration file. This configuration file can be made available to the users who then only need to install the adapter drivers and to activate the configuration created by the system administrator. As such, users do not need to configure the software.

To start an empty configuration:

1. Click ‘Start > Run’.
2. To enter the path to the Diva Server Configuration Manager:
   - Insert your Diva Server Software Suite CD-ROM into your CD-ROM drive and enter the following path:

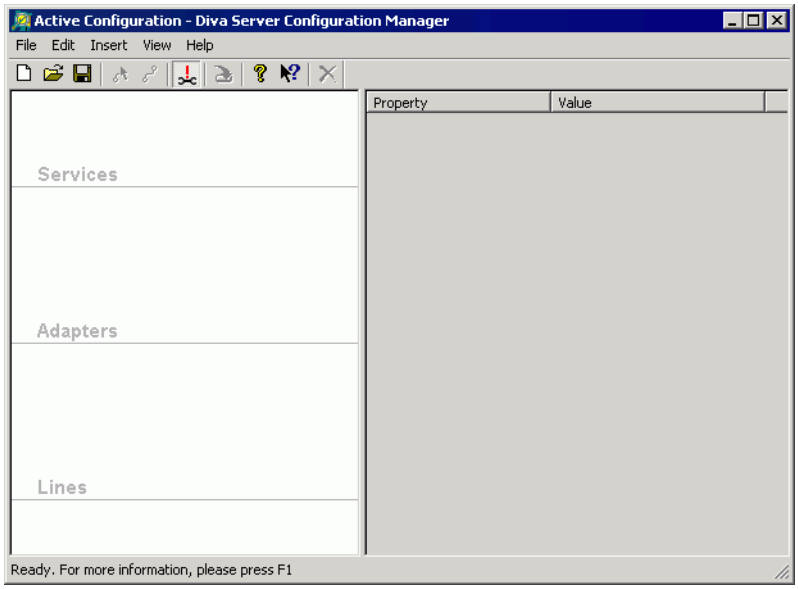
     `D:\DRIVER\i386\ENGLISH\Disrvcfg.EXE`
     (where D: is your CD-ROM drive letter).

- Or enter the path to the configuration file on the hard disk, for example:

  `C:\Temp\ISDN\Disrvcfg.EXE`
  (where C: is the hard disk drive letter).

Click ‘OK’.

3. The Configuration Manager is displayed with no components at all:



4. You can now do a complete manual configuration as described in ‘Configuring’ in the Diva Server Configuration Manager Online Help (DSMain.chm).

   Note: If configuration files have been created before, you can start the Configuration Manager and load a configuration file. The configuration file is displayed and you can modify it according to your requirements.

To activate an existing configuration

To activate a configuration file for your system, open the configuration file and click ‘File > Activate’; or click the activate button in the toolbar.

Note: You can only activate a configuration file for your system if the Diva Server adapters that are available in the Diva Server Configuration Manager correspond to the Diva Server adapters that are physically installed in your computer.

CHAPTER 5

Dial-Up Networking and RAS Administration

In the terminology used by the Remote Access Service, the calling station is referred to as the **Client** and the called station as the **Server**. The RAS client/server architecture allows a station to be defined simultaneously as a server and as a client and therefore enables simultaneous initiation of outgoing and incoming ISDN connections. For example, this enables the peer-to-peer connection of two Windows 2000 or Windows XP workstations.

RAS client setup

The RAS client can be used to establish connections to the following remote stations:

- Windows 2000, Windows XP, or Windows Server 2003 computer with RAS in server mode
- Internet Service Provider
- TCP/IP router

Setting up a RAS client under Windows 2000, Windows XP, or Windows Server 2003

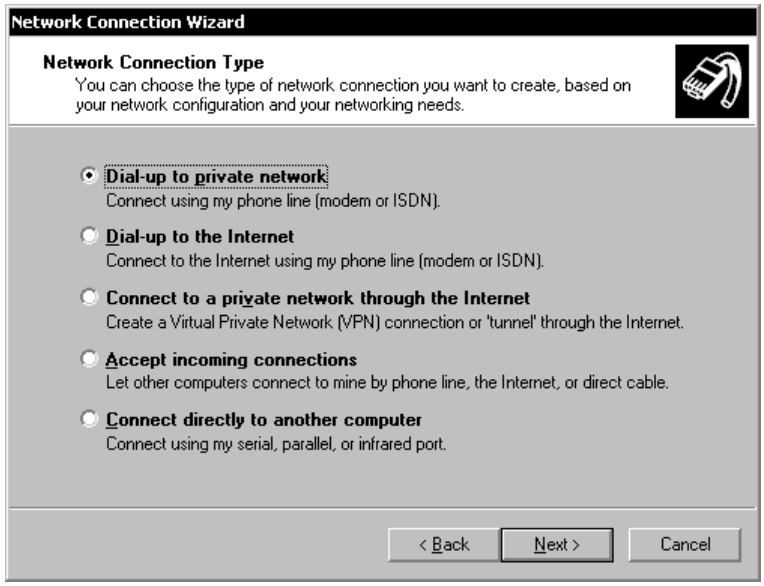
Under Windows 2000:

1. Click ‘Start > Settings > Network and Dial-up Connections’.
2. In the ‘Network and Dial-up Connections’ box, double-click ‘Make New Connection’.
3. If the ‘Location Information’ box appears, enter the country/region you are in. Enter your area code and, if required, your number to access an outside line.

   Click ‘OK’.
4. If the ‘Phone and Modem Options’ box appears, select your location.

   Click ‘OK’.
5. In the ‘Network Connection Wizard’, click ‘Next’.

6. In the ‘Network Connection Type’ box, select ‘Dial-up to private network’.


Network Connection Wizard
Network Connection Type
You can choose the type of network connection you want to create, based on your network configuration and your networking needs.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Dial-up to the Internet
Connect to the Internet using my phone line (modem or ISDN).
Connect to a private network through the Internet
Create a Virtual Private Network (VPN) connection or 'tunnel' through the Internet.
Accept incoming connections
Let other computers connect to mine by phone line, the Internet, or direct cable.
Connect directly to another computer
Connect using my serial, parallel, or infrared port.
< Back
Next >
Cancel

   Click ‘Next’.

To continue with the configuration go to step 7 on page 46.

Under Windows XP and Windows Server 2003:

1. *Under Windows XP:*

   Click ‘Start > Settings > Control Panel > Network Connections > New Connection Wizard’.

   In the ‘Network Connections’ window, under ‘Network Tasks’ on the left window side, double-click ‘Create a new connection’.

   Under Windows Server 2003:

   Click ‘Start > Control Panel > Network Connections > New Connection Wizard’.

2. If the ‘Location Information’ box appears, enter the country/region you are in. Enter your area code and, if required, your number to access an outside line.

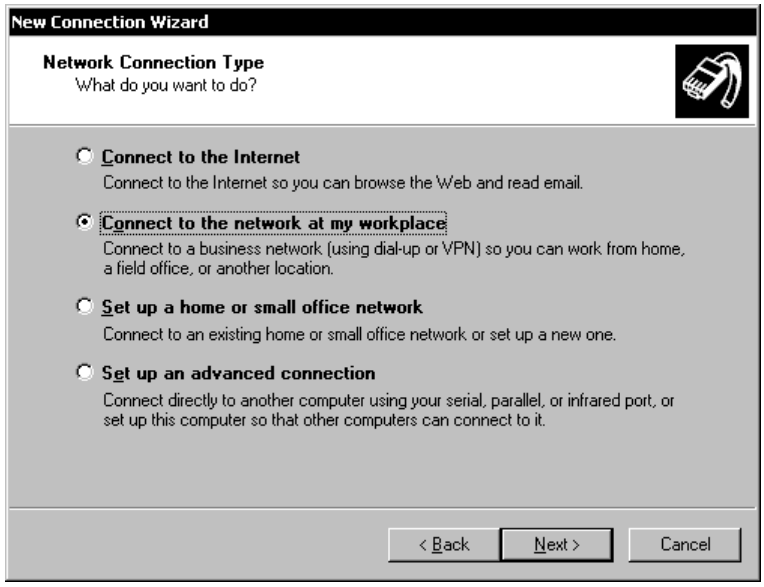
   Click ‘OK’.

3. If the ‘Phone and Modem Options’ box appears, select your location.

   Click ‘OK’.

4. In the ‘New Connection Wizard’, click ‘Next’.

5. In the ‘Network Connection Type’ box, select ‘Connect to the network at my workplace’.


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

Note: The screen might be slightly different under Windows Server 2003.

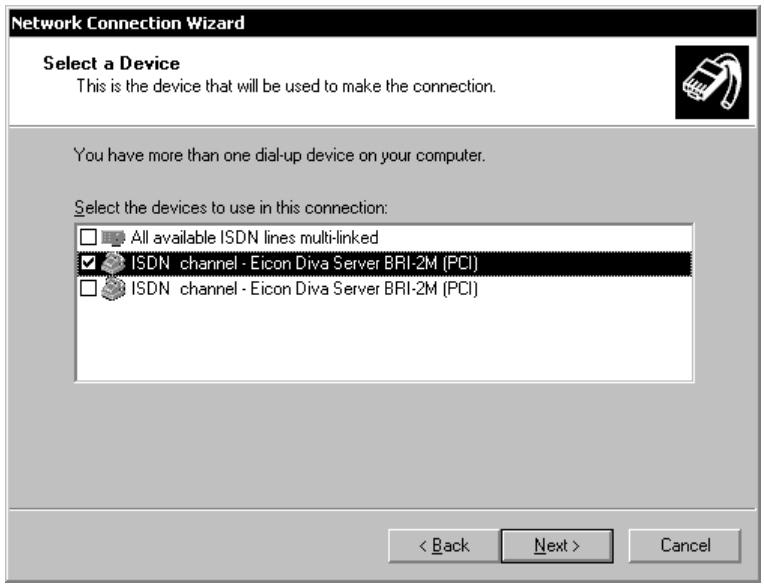
Click ‘Next’.

6. In the ‘Network Connection’ box, select ‘Dial-up connection’ and click ‘Next’.

To continue with the configuration go to step 7 on page 46.

Under Windows 2000, Windows XP, and Windows Server 2003:

7. If you have configured more than one port for outgoing calls, you must specify a port:


Network Connection Wizard
Select a Device
This is the device that will be used to make the connection.
You have more than one dial-up device on your computer.
Select the devices to use in this connection:
All available ISDN lines multi-linked
ISDN channel - Eicon Diva Server BRI-2M (PCI)
ISDN channel - Eicon Diva Server BRI-2M (PCI)
< Back
Next >
Cancel

Select a port, for example ‘ISDN channel - Eicon Diva Server BRI-2M’ to dedicate a line to this outgoing connection.

The effect of the setting ‘All available ISDN lines multi-linked’ is that RAS will automatically establish a connection over all lines.

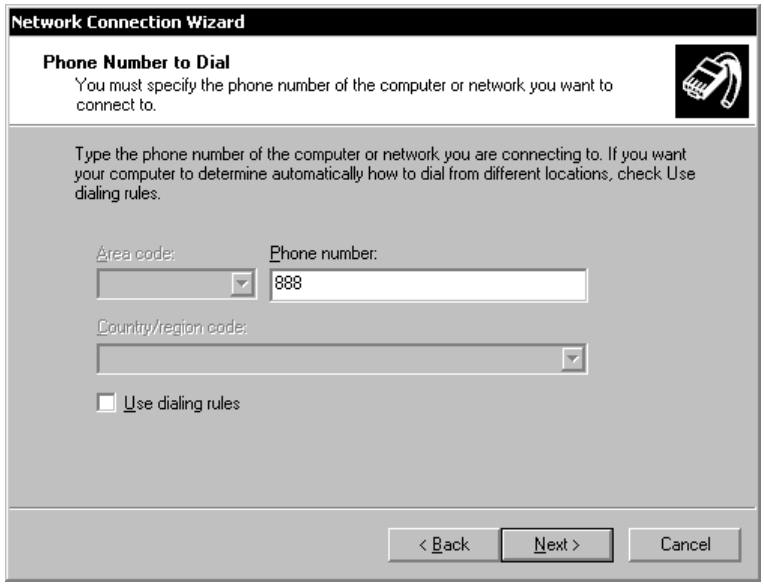
Note: A larger number of active lines may increase telephone charges. With a normal basic rate interface, a connection with the setting ‘All available ISDN lines multi-linked’ would be established over both B-channels.

Click ‘Next’.

8. *Only Windows XP and Windows Server 2003:*

In the ‘Connection Name’ box, enter a name for your RAS connection. Click ‘Next’.

9. In the ‘Phone Number to Dial’ box, enter the phone number of the server.


Network Connection Wizard
Phone Number to Dial
You must specify the phone number of the computer or network you want to connect to.
Type the phone number of the computer or network you are connecting to. If you want your computer to determine automatically how to dial from different locations, check Use dialing rules.
Area code:
Phone number:
888
Country/region code:
Use dialing rules
< Back
Next >
Cancel

If the server is configured to use subaddresses, you must specify the appropriate subaddresses in the ‘Phone Number to Dial’ box, separated by the vertical stroke ‘|’, (the pipe symbol, or press [Alt] and the digits [0], [1], [2] and [4] on the numeric keypad).

For example, if the phone number is 07152932640 SUB 41, you must enter 07152932640|41.

If your connection protocol is something other than synchronous HDLC, you must specify which protocol is used. This information can be attached to the server phone number, separated by the caret character ‘^’.

For example, for an analog call, add ‘^MODEM’ to the phone number of the server. For a call to GSM, add ‘^GSM1’, ‘^GSM2’ or ‘^GSM3’.

If your connection uses something other than a transfer rate of 64 kbps, you must specify which transfer rate is used. This information can also be attached to the server phone number separated by the caret character ‘^’.

For example, for a call to some regions in the United States where a line, a switch, or a device only supports a transfer rate of 56 kbps, add ‘^56K’ to the server phone number. The ‘T1 RBS’ switch type always uses a transfer rate of 56 kbps. Therefore, you must add ‘^56K’ for all outgoing calls if you use this switch type.
The required information can be found in the following table. The various parameters can also be entered in combination.

Designation	Description
Framing	
^HDLC	synchronous HDLC
^X.75	synchronous X.75
^ASYNC	additional information asynchronous
^SYNC	additional information synchronous
Services	
^XP	synchronous HDLC transparent (standard)
^V.120	asynchronous, default transfer rate is 64K, transfer rates given below can also be entered
^V.110	asynchronous, default transfer rate is 9600, transfer rates given below can also be entered
^GSM1	asynchronous without flow control, V.110/9600
^GSM2	asynchronous with flow control, V.110/9600
^GSM3	asynchronous with flow control, without LLC, V.110/9600
^PIAFS	PIAFS 2.1/64K (Diva Server BRI, V-BRI, 4BRI, V-4BRI, any PRI, T1/PRI, and V-PRI)
^PIAFS^32K	PIAFS 1.0/32K (Diva Server BRI, V-BRI, 4BRI, V-4BRI, any PRI, T1/PRI, and V-PRI)
^MODEM	asynchronous, entry of transfer speed is ignored, since this is handled by the modem
Speeds	
^600	asynchronous with ^V.110
^1200	asynchronous with ^V.110
^2400	asynchronous with ^V.110
^4800	asynchronous with ^V.110
^9600	asynchronous with ^V.110
^14400	asynchronous with ^V.110
^19200	asynchronous with ^V.110
^28800	asynchronous with ^V.110
^33600	asynchronous
^38400	asynchronous with ^V.110
^56K	HDLC, X.75, V.120
^64K	HDLC, X.75, V.120

Click ‘Next’.

10. In the ‘Connection Availability’ box, select if the connection should be made available to all users or only to yourself.

    Click ‘Next’.

11. If you are connected to a network and you selected to make the connection available to all users, the ‘Internet Connection Sharing’ box is displayed.

12. Specify if your Internet connection can be shared by all users or if it should be available only to yourself. Click ‘Next’.

13. *Only Windows 2000:*

    In the ‘Completing the Network Connection Wizard’ enter a name for your RAS connection.

14. Click ‘Finish’ to save the newly set up RAS client. If you need to make changes, click ‘Back’ until you reach the box where the changes are to be made.

15. In the displayed dialog box, click the ‘Dial’ button to connect.

Assign multiple phone numbers to a connection

You can assign several phone numbers to a connection. These phone numbers will be used as alternative numbers if the first number fails for example, when the line is busy.

1. *Under Windows 2000:*
   Click ‘Start > Settings > Network and Dial-up Connections’ and right-click the connection to which you want to assign multiple numbers.

   Under Windows XP:
   Click ‘Start > Settings > Control Panel’. Double-click ‘Network Connections’ and right-click the connection to which you want to assign multiple numbers.

   Under Windows Server 2003
   Click ‘Start > Control Panel > Network Connections’ and right-click the connection to which you want to assign multiple numbers.

2. Select ‘Properties’.

3. In the properties dialog box of your connection, click the ‘General’ tab. Click ‘Alternates’.

4. In the ‘Alternate Phone Numbers’ box, check the option ‘If number fails, try next number’.

5. To add a new phone number to the list, click ‘Add’.

6. In the ‘Add Alternate Phone Number’ box, enter the phone number. Click ‘OK’.

7. Click ‘OK’ to close the ‘Alternate Phone Numbers’ box.

8. Click ‘OK’ again to close the properties dialog box.

Under Windows 2000 and Windows XP:

To observe the progress of an active connection, click ‘Start > Settings > Network and Dial-up connections’ and right-click the connection. Select ‘Status’ (see also RAS status on page 56).

To specify the network protocol(s) for every set-up connection, click ‘Start > Settings > Network and Dial-up connections’ and right-click the connection. Select ‘Properties’.

In the properties dialog box of your connection, click the ‘Networking’ tab. You can now activate the desired network protocol(s) for your connection.

For more detailed information on the RAS client, see the Windows 2000 or Windows XP RAS documentation.

Under Windows Server 2003:

To observe the progress of an active connection, click ‘Start > Control Panel > Network Connections’ and right-click the connection. Select ‘Status’ (see also RAS status on page 56).

To specify the network protocol(s) for every set-up connection, click ‘Start > Control Panel > Network Connections’ and right-click the connection. Select ‘Properties’.

In the properties dialog box of your connection, click the ‘Networking’ tab. You can now activate the desired network protocol(s) for your connection.

For more detailed information on the RAS client, see the Windows Server 2003 RAS documentation.

RAS server setup

Note: Windows XP Professional allows you to set up an incoming connection that can accept up to three incoming calls. To do so, start the 'New Connection Wizard' and select 'Set up an advanced connection > Accept incoming connections'. Since Windows XP Professional does not allow to set up a RAS server for a large number of incoming connections, the following description only refers to the Windows 2000 Server and Windows Server 2003 operating system.

The Remote Access application enables you to configure and control the RAS server.

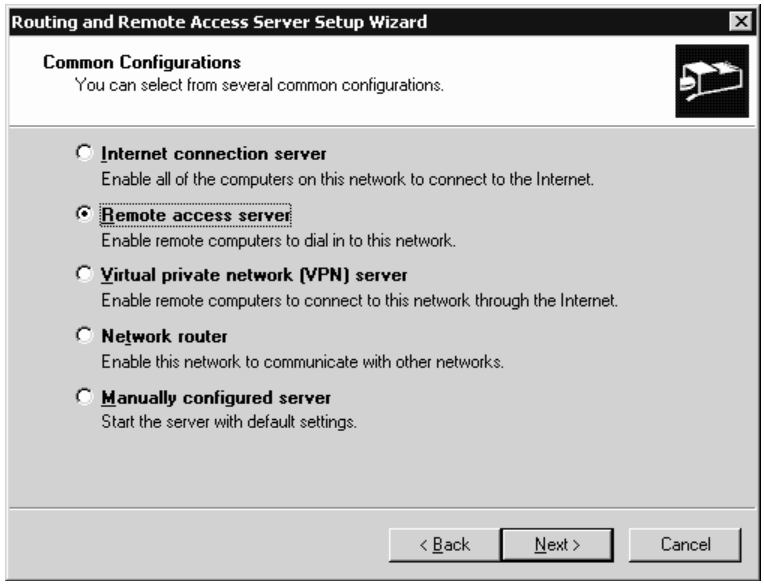
Your computer is automatically launched as server when Windows 2000 Server starts but you still need to configure and enable remote access.

To configure remote access under Windows 2000 and Windows XP see To configure and enable remote access under Windows 2000 and Windows XP: below.

To configure remote access under Windows Server 2003 see To configure and enable remote access under Windows Server 2003: on page 52.

To configure and enable remote access under Windows 2000 and Windows XP:

1. Click 'Start > Programs > Administrative Tools > Routing and Remote Access'.
2. In the 'Routing and Remote Access' window, right-click the entry for your computer and select 'Configure and Enable Routing and Remote Access'.
3. In the 'Routing and Remote Access Server Setup Wizard', click 'Next'.
4. In the displayed dialog box, select 'Remote access server'.


Routing and Remote Access Server Setup Wizard
Common Configurations
You can select from several common configurations.
Internet connection server
Enable all of the computers on this network to connect to the Internet.
Remote access server
Enable remote computers to dial in to this network.
Virtual private network (VPN) server
Enable remote computers to connect to this network through the Internet.
Network router
Enable this network to communicate with other networks.
Manually configured server
Start the server with default settings.
< Back
Next >
Cancel

Click 'Next'.

5. In the ‘Remote Access Server Setup’ box, select the option ‘Set up an advanced remote access server’.

   Click ‘Next’.

6. In the ‘Remote Client Protocols’ box, verify if all protocols required for remote clients are installed.

   Click ‘Next’.

7. If you are not connected to a network, the ‘No Network Connections Detected’ box is displayed.

   Check the option ‘No, I am setting up a stand-alone server with no access to a network’.

   Click ‘Next’.

8. In the ‘IP Address Assignment’ box, specify whether IP-addresses will be assigned to remote clients automatically or from a specified range.

   Click ‘Next’.

   Note: If you select to assign the IP-addresses from a specified range, enter the address ranges in the following dialog boxes.

9. If your computer is part of a network, the ‘Managing Multiple Remote Access Servers’ box is displayed.

   Specify if you want to set up your RAS server to use an existing RADIUS server. By default, the RADIUS server is not used.

   The RADIUS (Remote Authentication Dial-In User Service) protocol is used for managing remote user authentication and authorization in dial-up networks or virtual private networks. If a RADIUS server is available in your LAN you can have your RAS connections authenticated and monitored by this server. You do not need to create your own remote access policies.

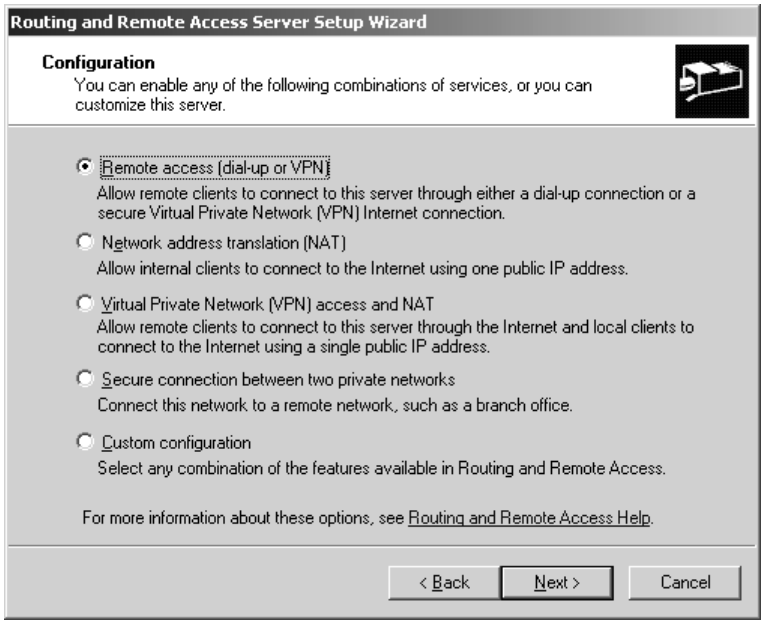
   Click ‘Next’.

10. Click ‘Finish’ to finish the ‘Routing and Remote Access Server Setup Wizard’.

To configure and enable remote access under Windows Server 2003:

1. Click ‘Start > Administrative Tools > Routing and Remote Access’.
2. In the ‘Routing and Remote Access’ window, right-click the entry for your computer and select ‘Configure and Enable Routing and Remote Access’.
3. In the ‘Routing and Remote Access Server Setup Wizard’, click ‘Next’.

4. In the ‘Configuration’ dialog box, select ‘Remote access (dial-up or VPN)’.


Routing and Remote Access Server Setup Wizard
Configuration
You can enable any of the following combinations of services, or you can customize this server.
Remote access (dial-up or VPN)
Allow remote clients to connect to this server through either a dial-up connection or a secure Virtual Private Network (VPN) Internet connection.
Network address translation (NAT)
Allow internal clients to connect to the Internet using one public IP address.
Virtual Private Network (VPN) access and NAT
Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.
Secure connection between two private networks
Connect this network to a remote network, such as a branch office.
Custom configuration
Select any combination of the features available in Routing and Remote Access.
For more information about these options, see Routing and Remote Access Help.
< Back
Next >
Cancel

   Click ‘Next’.

5. In the ‘Remote Access’ box, select whether the server should receive VPN and/or dial-up connections.

   Click ‘Next’.

6. In the ‘IP Address Assignment’ box, specify whether IP addresses will be assigned to remote clients automatically or from a specified range.

   Click ‘Next’.

   Note: If you select to assign the IP addresses from a specified range, enter the address ranges in the following dialog boxes.

7. If your computer is part of a network, the ‘Managing Multiple Remote Access Servers’ box is displayed.

   Specify if you want to set up your RAS server to use an existing RADIUS server. By default, the RADIUS server is not used.

   The RADIUS (Remote Authentication Dial-In User Service) protocol is used for managing remote user authentication and authorization in dial-up networks or virtual private networks. If a RADIUS server is available in your LAN you can have your RAS connections authenticated and monitored by this server. You do not need to create your own remote access policies.

   Click ‘Next’.

8. Click ‘Finish’ to finish the ‘Routing and Remote Access Server Setup Wizard’.

To configure access authorizations for the RAS server:

1. *Under Windows 2000 and Windows XP:*
   Click ‘Start > Programs > Administrative Tools > Computer Management’.

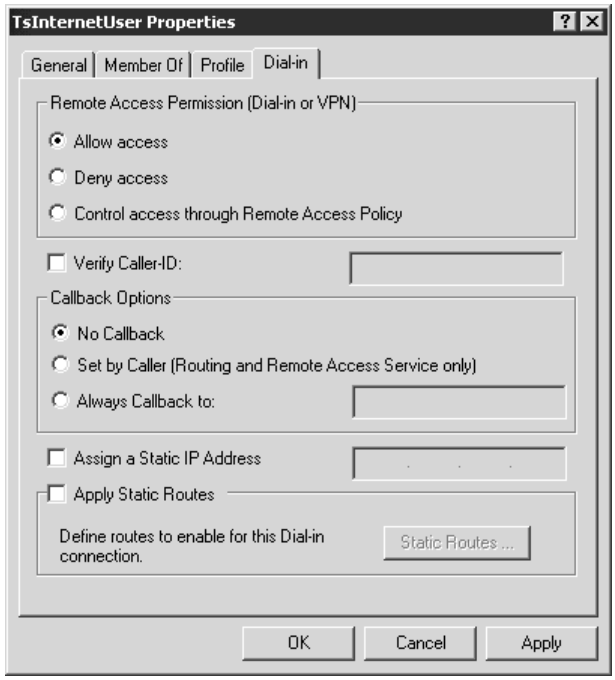
   Under Windows Server 2003:
   Click ‘Start > Administrative Tools > Computer Management’.

2. In the ‘Computer Management’ window, select ‘System Tools > Local Users and Groups > Users’.

3. In the details pane, right-click the user for whom you want to configure the access authorizations.

   Select ‘Properties’.

4. In the properties dialog box, select the ‘Dial-in’ tab and activate the desired access rights:



   - **Allow access**
     The user has the direct permission to dial into the RAS server. This permission overrules all remote access policies.
   - **Deny access**
     The user has no permission to dial into the RAS server. This denial also overrules all remote access policies.

- **Control access through Remote Access Policy**
  Depending on the Remote Access Policy, dial-in permission is granted or denied to the user. For further information on Remote Access Policies, see your Windows documentation.

The following callback options can be configured:

- **No Callback**
  The client establishes the connection to the server and maintains the connection. The user of the RAS client assumes all charges.
- **Set by Caller (Routing and Remote Access Service only)**
  The client establishes the connection to the server, sends its current call number and then breaks the connection. The server calls the client back at the number given and therefore assumes the charges for the call. The client's call can therefore be made from any site.
- **Always Callback to**
  The client establishes the connection to the server, thereby indicating that a connection is required, and then breaks the connection. The server calls the client back at the preassigned call number. This ensures that the client can call from one telephone terminal only. This ensures that no other partner can call from another terminal, because this call number cannot be manipulated.

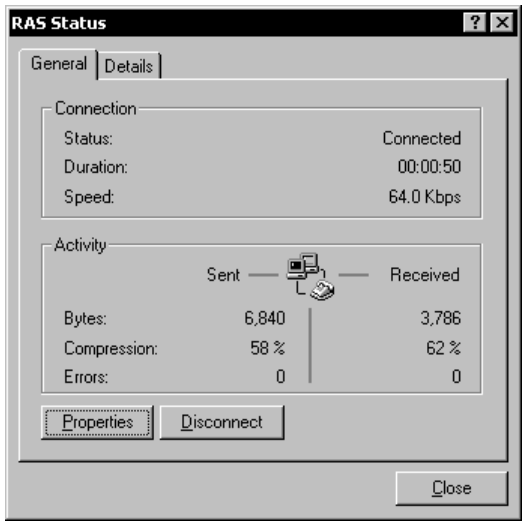
To close the dialog box, click 'OK'.

Note: Only the users that are set up on the server are shown in the 'Users' list. For information on how to configure authorizations for remote access for Windows 2000 and Windows Server 2003 domains, see your Windows documentation.

RAS status

To monitor a currently active connection:

1. To monitor the status of a currently active outgoing connection, right-click the connection. Select ‘Status’.
2. The ‘RAS Status’ monitor is displayed:

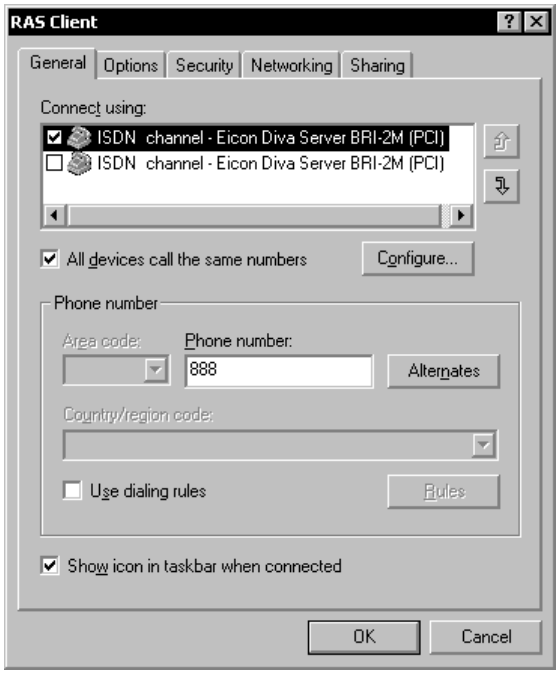


To monitor a connection each time it is active:

1. *Under Windows 2000 and Windows XP*
   Click ‘Start > Settings > Network and Dial-up Connections’. Select the desired connection.

   Under Windows Server 2003
   Click ‘Start > Control Panel > Network Connections’ and select the desired connection.
2. In the displayed dialog box, click ‘Properties’.

3. In the properties dialog box, click the ‘General’ tab:



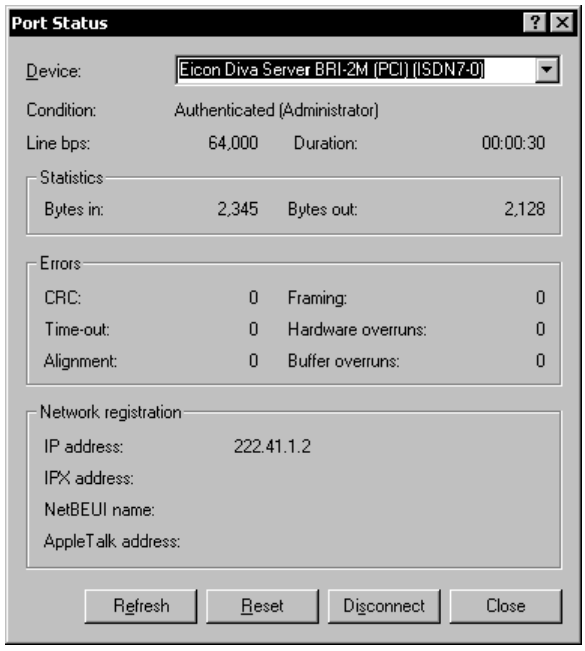
Check the option ‘Show icon in taskbar when connected’. Click ‘OK’.

4. Each time, when the connection is active, an icon is displayed in the Windows taskbar.

To monitor the status of RAS server ports:

1. To monitor the status of a RAS server port, click ‘Start > Programs > Administrative Tools > Routing and Remote Access’.
2. In the ‘Routing and Remote Access’ window, click the ‘+’ next to your RAS server to expand the tree.
3. Click ‘Ports’ to display the available ports in the right window pane.

4. Double-click the port for which you want to display the ‘Port Status’.



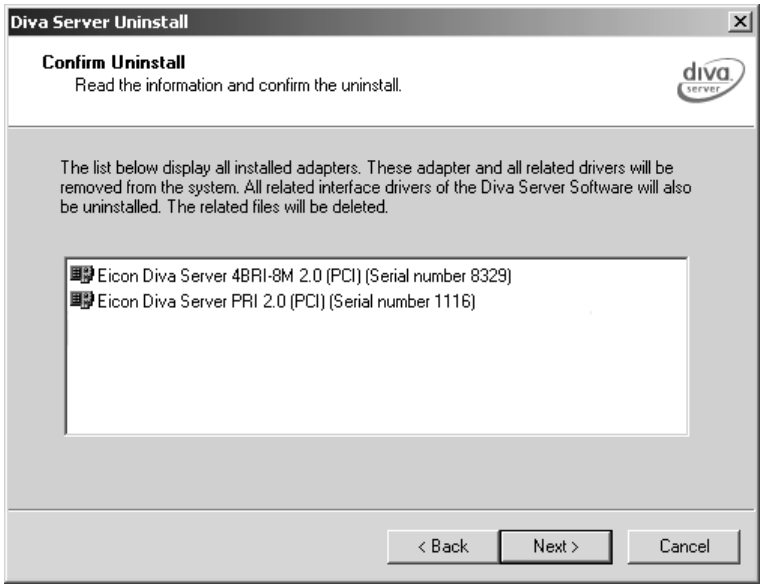
CHAPTER 6

Uninstalling

If you want to uninstall all installed Diva Server adapters and related software, use Diva Server Uninstall as described below. If you do not want to uninstall all Diva Server adapters, use the Device Manager as described on page 60.

Diva Server adapter uninstallation with Diva Server Uninstall:

1. Click ‘Start > Programs > Diva Server for Windows > Diva Server Uninstall’.
2. The welcome dialog box is displayed. Follow the instructions on the screen and click ‘Next’ to continue.
3. In the ‘Confirm Uninstall’ box, all installed Diva Server adapters are displayed:


Diva Server Uninstall
Confirm Uninstall
Read the information and confirm the uninstall.
diva server
The list below display all installed adapters. These adapter and all related drivers will be removed from the system. All related interface drivers of the Diva Server Software will also be uninstalled. The related files will be deleted.
Eicon Diva Server 4BRI-8M 2.0 (PCI) (Serial number 8329)
Eicon Diva Server PRI 2.0 (PCI) (Serial number 1116)
< Back
Next >
Cancel

Click ‘Next’ to uninstall all Diva Server adapters and related drivers.

4. In the displayed dialog box, select if you want to shut down or restart your computer now or later.

Diva Server Uninstall
Diva Server for Windows
diva server
The Uninstall of the Diva Server Software is complete.
If you want to remove the hardware please shutdown the system now. To reinstall drivers please reboot the system.
Shutdown the system to remove the hardware
Reboot the system to reinstall the software
Do nothing, the system will be manually restarted
< Back
Finish
Cancel

Click ‘Finish’, to complete the process.

Diva Server adapter uninstallation with Device Manager:

1. *Under Windows 2000 and Windows XP:*

   Click ‘Start > Settings > Control Panel’. Double-click the ‘Systems’ icon.

   Under Windows Server 2003:

   Click ‘Start > Control Panel > System’.

2. In the ‘System Properties’ box, click the ‘Hardware’ tab.

   Click ‘Device Manager’.

3. In the ‘Device Manager’ box, right-click the entry of the Diva Server adapter that you want to uninstall.
4. Click ‘Uninstall’.
5. In the ‘Confirm Device Removal’ box, click ‘OK’ to start the uninstallation.
6. Shut down your computer and physically remove the Diva Server adapter from your system. Otherwise, Windows 2000, Windows XP, or Windows 2003 will detect and install the adapter again as soon as you restart your computer.

CHAPTER 7

Maintenance Tools

Diva Server for Windows offers the following tools for testing your connection and controller on your adapter, and diagnosing and solving problems that might occur with your Diva Server adapter or the connection:

Diva Server Line Test see below

Diva Server Diagnostics on page 62

Diva Server Line Test

To use the Diva Server Line Test utility, you must have installed your Diva Server adapter, Diva Server for Windows and connected your ISDN or analog line to the adapter.

1. To open Diva Server Line Test, click ‘Start > Programs > Diva Server for Windows > Diva Server Line Test’.
2. The ‘Diva Server Line Test’ box opens.

Diva Server Line Test offers the following tests:

- **Line Check:**

  Performs a quick check of your Diva Server Software installation and the physical connection.

- **Hardware Test:**

  Performs a test only of the controller.

- **Phone/Loop Test:**

  Performs basic inbound or outbound phone tests, to test the connection to other telephones or to itself.

- **Call Transfer Test:**

  Performs different call transfer tests, with the option to choose the transfer type.

- **Fax Test:**

  Performs basic inbound or outbound fax tests.

For more information about the tests see Diva Server Line Test Online Help (DSLineTest.chm).

If Diva Server Line Test does not return an error, but you cannot get your Diva Server adapter to work properly, there might be a problem in the configuration of the application you are using with your Diva Server adapter (such as Dial-Up Networking or faxing software).

Diva Server Diagnostics

The Diva Server Diagnostics tool can help with the analysis of problems if you encounter difficulties with the Eicon drivers or the connection.

Every Eicon driver sends status messages and reports any error that occurs. The messages are saved in a specific memory area of a fixed size, so that the oldest messages are overwritten when the memory is full.

Diva Server Diagnostics enables the messages from Diva Server adapters and various drivers to be displayed and saved.

1. To open Diva Server Diagnostics click ‘Start > Programs > Diva Server for Windows > Diva Server Diagnostics’.
2. The ‘Diva Server Diagnostics’ box opens.

For more information on Diva Server Diagnostics see Diva Server Diagnostics Online Help (DivaTrace.chm).

CHAPTER 8

Management Tools

Diva Server Management

Diva Server Management is integrated into the Microsoft Management Console (MMC) via a snap-in. You may create your own set of management, for instance the Device Manager combined with the Diva Server Management.

Diva Server Management is a tool that displays the current status of the connected lines, the active connections and the history of connections. Simply testing lines and connectivity is also part of Diva Server management.

To open Diva Server Management as standalone program, click ‘Start > Programs > Diva Server for Windows > Diva Server Management’.

Diva Server Management offers the following statistics:

- **Status:**

  Displays an overview of all installed Diva Server adapters in the system and the events taking place on these adapters.

- **Active Connections:**

  Displays the Diva Server adapters with active incoming or outgoing calls.

- **Call History:**

  Displays the history for all conducted ingoing or outgoing calls.

For more information about the statistics see the Diva Server Management Online Help (DivaServerManagement.chm).

CHAPTER 9

Features

Diva Server adapters provide different features and capabilities with Diva Server for Windows.

The interfaces supported by Diva Server adapters are as follows. However, not all features may be available on all the supported interfaces.

IDI	ISDN Direct Interface. Supports all features and capabilities of Eicon ISDN adapters.
WAN Miniport	Provides support for WAN protocols running over ISDN, channelized T1, or analog. Useful for connecting to Windows Remote Access Services (RAS).
COM Port	For applications that require communications via a standard PC communications port.
CAPI 2.0	Common ISDN Application Programming Interface. A standard interface for applications to interact with ISDN adapters.
TAPI	Telephony Application Programming Interface. An interface for communication programs to work with telephony and network services.

For features of Diva Server ISDN adapters see the tables from page 65 on. For features of Diva Server Analog adapters see the tables from page 72 on.

Features of Diva Server ISDN adapters

Features via interface:	IDI	WAN MiniPort	COM Port	CAPI 2.0	TAPI
B-channel related:					
Transparent HDLC, 64/56[7)] kbps	•	•	•	•	•[6)]
Transparent (Voice)	•			•	•
X.75 64/56[7)] kbps	•	•	•	•	•[6)]
T.70/T.90 (T-Online)[9)]	•		•	•	•[6)]
V.110 (GSM)[1)9)]	•	•	•	•	•[6)]
V.120 64/56 kbps (CompuServe)	•	•	•	•	•[6)]
V.34+, V.90 analog modem[1)7)9)]	•	•	•	•	•[6)]
V.42, V.42bis[1)7)9)]	•	•	•	•	•[6)]
X.75/V.42bis	•			•	
Change of B-channel protocol during a call	•			•	
X.25[2)], X.31, ISO 8208 in the B-channel	•		•	•	•[6)]
PIAFS 1.0 and 2.1[7)]	•	•			
SDLC	•			•	
Fax Group 4 (incl. T.90/ISO 8208 and module mode detection)[9)]	•			•	
T.30 Fax Group 3 (analog), Class 1 and 2[1)9)]	•		•	•	•[6)]
Fax with Error Correction Mode (ECM)[1)9)] Fax with MR (D2 coding)[1)9)] Fax with MMR (T.6 coding)[1)9)]	•		•	•	•[6)]
Fax 14.4 kbps[1)9)]	•		•	•	•[6)]
Fax 33.6 kbps (V.34)[1)9)]	•			•	
Fax T.38 (up to 33.6 kbps)	•			•	
Fax tone detection[1)]	•			•	
Reversal of fax direction[1)9)]	•			•	
Fax polling / fax on demand[1)9)]	•		•[5)]	•	
Speed and feature indication (polling and ECM)[1)9)]	•			•	
New fax header line[1)9)]	•			•	
Page formats: ISO A4, ISO B4, ISO A3[1)9)]	•			•	

Features via interface:	IDI	WAN MiniPort	COM Port	CAPI 2.0	TAPI
Resolution: standard, fine, super-fine, ultra-fine[1)9)]	•			•	
DTMF tone detection and transmission[3)]	•			•	•
DTMF clamping[10)]	•			•	
On-board switching and conferencing (via line interconnect)[8)]	•			•	
Media mode (unknown, interactive voice, automated voice)[1)]	•				•
Wave audio format (8-bit 8 kHz A-Law, 8-bit 8 kHz µ-Law, 8-bit 8 kHz PCM, 16-bit 8 kHz PCM)[1)]	•				•
Silence detection				•	
Volume control					•
Echo cancellation[1)7)]				•	
Real time protocol (RTP)[1)7)]				•	
Comfort noise generation (CNG)[1)7)]				•	
Voice activity detection (VAD)[1)7)]				•	
Dynamic anti-jitter buffer[1)7)]				•	
Audio tap[1)7)]				•	
GSM and G.726 voice codecs[1)7)]				•	
Recording AGC				•	
Supplementary Services:[4)]					
MSN (multiple subscriber number)	•	•	•	•	•
DDI (direct dialing-in)	•	•	•	•	•
SUB (sub-addressing)	•			•	
CLIP (calling line identification presentation)	•		•	•	•
CLIR (calling line identification restriction)	•			•	•
COLP (connected line identification presentation)	•			•	•
COLR (connected line identification restriction)	•			•	•
CCBS (call completion to busy subscriber)	•			•	•
CCNR (call completion on no reply)	•			•	•

Features via interface:	IDI	WAN MiniPort	COM Port	CAPI 2.0	TAPI
TP (terminal portability)	•			•	
Call forwarding unconditional	•			•	•
Call forwarding busy	•			•	•
Call forwarding no reply	•			•	•
Call deflection/ Call rerouting	•			•	
CW (call waiting)	•			•	•
HOLD (hold and retrieve a call)	•			•	•
ECT (explicit call transfer)	•			•	•
Blind transfer					•
AoC (advice of charge)	•			•	•
Three-party conference	•			•	
Large conference	•			•	
User-to-user signaling	•			•	•
Others:					
Transparent D-channel	•			•	
X.25/D-channel including AO/DI support	•			•	

[1] Features are not available with Diva Server PRI-0M, Diva Server PRI/E1/T1, and all versions of Diva Server T1/PRI adapters.

[2] CAPI 2.0 supports X.25 in the B- and D-channel, permanent virtual connections (PVC) and switched virtual connections (SVC), and multiple logical connections per B-channel.
The COM port supports X.25 with one PVC in the B-channel.

[3] DTMF tone detection and transmission is done via soft DTMF for Diva Server PRI-0M, Diva Server T1/PRI, and Diva Server PRI/E1/T1 adapters.

[4] For an overview on supplementary services support by the various switch types, see On-board switching and conferencing on page 68.

[5] The COM Port supports fax polling for Fax Class 1 only.

[6] Features are available with TAPI via Unimodem support.

[7] Features are not available with Diva Server 2FX adapters.

[8] For an overview on switching and conferencing support by the various Diva Server adapters, see On-board switching and conferencing on page 68.

[9] Features are not available with Diva Server V-Series adapters.

[10] Features are not available with Diva Server PRI and T1/PRI without additional DSPs.

On-board switching and conferencing

Some switches do not offer supplementary services such as call transfer, overlap sending, three-party conference, or large conference. For these switches, the Diva Server adapters and software can provide these supplementary services by connecting or forwarding calls directly on the adapter (also known as 'tromboning').

Support for on-board switching and conferencing depends on the installed Diva Server adapter. The table below outlines the various types of switching and their support by Diva Server adapters.

Note: On-board switching and conferencing is only possible if it is supported by your application.

Switching and conferencing via adapter:	Switching and conferencing (within one board)	Cross-board switching
Diva Server Analog		
Diva Server Analog-2P	•	•
Diva Server Analog-4P Diva Server Analog-8P	•	•
Diva Server BRI		
Diva Server 2FX		
Diva Server BRI-2M 2.0 Diva Server V-BRI-2	•	•
Diva Server 4BRI-8M 2.0 Diva Server V-4BRI-8	•	•
Diva Server PRI 2.0		
Diva Server PRI-0M Diva Server PRI-4M Diva Server PRI-8M	•[1)]	•
Diva Server PRI-30M	•	•
Diva Server PRI 3.0		
Diva Server PRI/E1/T1-CTI Diva Server PRI/E1/T1-8	•[1)]	•
Diva Server PRI/E1-30 Diva Server V-PRI/E1-30	•	•
Diva Server Multiport PRI		
Diva Server V-2PRI/E1/T1 Diva Server V-4PRI/E1/T1	•	•

Switching and conferencing via adapter:	Switching and conferencing (within one board)	Cross-board switching
Diva Server PRI PCIe		
Diva Server PRI/E1/T1-CTI PCIe	•[1)]	•
Diva Server PRI/E1-30 PCIe Diva Server V-PRI/E1-30 PCIe	•	•

[1)] Conference functionality is limited to eight participants.

Supplementary services

The Diva Server for Windows software supports basic call services for all switch types that are available in the Diva Server Configuration Manager. In addition to this, it offers supplementary services for the following switch types:

- Euro-ISDN (ETSI) BRI and PRI
- 5ESS Custom (AT&T)
- 5ESS NI (Lucent/Avaya)
- DMS 100 (Nortel)
- Q-Sig

  Q-Sig support is available for the derivatives ECMA-QSIG, and ISO-QSIG. Thus, the Q-Sig switch type can be used with any PBX based on one of these derivatives. Q-Sig has been tested with a number of various switches, for example, Alcatel 4200, Alcatel 4400, 4410, DeTeWe OpenCom 1000/1010, Ericsson MD 110, Ericsson BP250, Hicom 150, Hicom 300, Lucent Definity, Matra 65xx, Nortel Meridian, Nortel M65xx, Siemens HiPath 3000, and Siemens HiPath 4000, Tenovis.

The table below gives a detailed overview of the supplementary services supported by the switch types listed above.

Note: The availability of supplementary services also depends on your PBX. For detailed information on supplementary services supported by your PBX, contact the PBX manufacturer.

Supplementary services with switch type	Euro-ISDN (ETSI) PRI	Euro-ISDN (ETSI) BRI	Q-Sig	5ESS Custom (AT&T), 5ESS NI (Lucent/Avaya), DMS 100
MSN (multiple subscriber number)	•	•	•	• (incoming)
DDI (direct dialing-in)	•	•	•	
SUB (sub-addressing)	•	•	•	•

Supplementary services with switch type	Euro-ISDN (ETSI) PRI	Euro-ISDN (ETSI) BRI	Q-Sig	5ESS Custom (AT&T), 5ESS NI (Lucent/Avaya), DMS 100
CLIP (calling line identification presentation)	•	•	•	•
CLIR (calling line identification restriction)	•	•	•	•
COLP (connected line identification presentation)	•	•	•	•
COLR (connected line identification restriction)	•	•	•	•
KEY (keypad protocol)	•	•	•[4)]	•
AoC (advice of charge)	•	•	•	
User-to-user signaling	•	•	•	
TP (terminal portability)		•		•
Call forwarding unconditional		•		
Call forwarding busy		•		
Call forwarding no reply		•		
Call deflection		•	•	
CW (call waiting)		•		•
HOLD (hold and retrieve a call)	•[1)]	•	•[2)]	•
ECT (explicit call transfer)		•	•[3)]	•
ECT by rerouting			•	
ECT by join			•[3)]	
Single-step call transfer (over CAPI deflection)			•	
Three-party conference		•		•
Large conference		•		•
Drop conference		•		•
Name identification services			• (presented by switch)	• (presented by network)

Supplementary services with switch type	Euro-ISDN (ETSI) PRI	Euro-ISDN (ETSI) BRI	Q-Sig	5ESS Custom (AT&T), 5ESS NI (Lucent/Avaya), DMS 100
Generic functional procedures (basis for supplementary services in Q-Sig environment)			•	
Common information			•	
Redirected number translation from Q-Sig to Q.931			•	
Escape message types				• (5ESS Custom only)
Call Appearance/Call Handling (CACH) plus configuration				•
Feature activators plus configuration				• (5ESS NI + DMS 100 only)
Network display conversion/treatment				•
Message waiting	•	•	•	•
CCBS (call completion to busy subscriber)		•	•	
CCNR (call completion on no reply)		•	•	

[1] HOLD is not a standard supplementary service for Euro-ISDN PRI, nevertheless some PBXs support call hold and retrieve.

[2] HOLD is not defined in Q-Sig but corresponding procedures are available.

[3] Call transfer is only possible if path replacement works.

[4] In a Q-Sig environment, the feature is also called ‘Simple Dialog’.

Features of Diva Server Analog adapters

Call control features

- Dial tone detection
- Dial pulse detection
- Pulse dialing
- Tone (DTMF/MF) dialing
- Busy tone detection
- Ring back tone detection
- Special Information Tone (SIT) detection
- Fax/modem detection
- Hold/Retrieve (via Hook Flash) and keypad protocol
- Analog caller identification (via FSK and DTMF signaling)
- Collection of DTMF post-dial digits
- DTMF parsing
- Call transfer
- Specify call direction
- Configurable PBX parameters
  - Disconnect active call
  - Disconnect hold call
  - Hold
  - Swap hold
  - Complete transfer
  - Hook-flash length
  - Retrieve mode

Voice and speech features

- G.711 coding (a-law, µ-law selectable)
- DTMF detection and generation
- DTMF clamping and filtering
- Generic tone detection and generation
- Pulse tone detection

- Full-duplex voice, ‘barge-in’
- Voice activity detection
- Silence detection
- Human talker detection
- Fax signal detection
- G.168 echo cancellation, up to 128 ms tail length
- Recording automatic gain control (AGC)
- Pitch control
- Audio tap

Voice over IP support

- G.711 voice codec (64 kbps, µ-law, A-law)
- G.726 voice codec (32 kbps)
- GSM voice codec (13 kbps)
- G.168 echo cancellation, up to 128 ms tail length
- Adaptive jitter buffer
- Voice activity detection (VAD)
- Comfort noise generation (CNG)
- Real time protocol (RTP framing)
- Impedance calibration

Switching and Conferencing features

- On-board switching and conferencing
- Automatic gain control (AGC)

Fax features

- Support for fax class 1 and 2
- Support for fax group 3, T.30
  - V.17, V.29, V.27ter, V.21, V.34 modulation
  - Up to 33.600 bps with each channel (send and receive)
  - Fax compression MH, MR, MMR
  - Error Correction Mode (ECM)

- Fax polling/ Fax on demand
- Reversal of fax direction
- Fax password
- Fax sub addressing
- New fax header line
- Page formats: ISO A4, B4, A3
- Standard, fine, super-fine and ultra-fine resolution
- Color fax (JPEG-format)

Data modem features

- V.21, V.22, V.22bis, Bell 103, Bell 212A, V.32, V.32bis, V.34, V.42, V.42bis, V.90, MNP4, MNP5,
- Modem with extension: V.18, V.21, Bell 103, V.23, EDT, Baudot 45, Baudot 47, Baudot 50 incl. DTMF, V.42, V.42bis

CHAPTER 10

Customer Services

Eicon Networks provides various possibilities to obtain technical support for your Eicon Networks product. We recommend that you contact your Eicon Networks supplier first. If your supplier is not able to solve your problem visit our help web with its detailed information about a variety of topics. In the unusual case that the information on the help web cannot help you fix the problem contact our Customer Support.

For more information see below:

- Eicon Networks Supplier
- Eicon Networks Help Web
- Eicon Networks Customer Support

Eicon Networks Supplier

To obtain technical support for Eicon Networks products contact your Eicon Networks supplier. Before doing so you might want to use the Diva Server Line Test, Diva Server Hardware Test, Diva Server Diagnostics and the Diva Server Management tool first to see if you can already solve the problem herewith. For more information see the online help files for the respective tool:

- **DSLineTest.chm** for Diva Server Line Test and Hardware Test
- **DivaTrace.chm** for Diva Server Diagnostics
- **DivaServerManagement.chm** for the Diva Server Management tool

Eicon Networks Help Web

If your supplier was not able to help you to solve the problem visit our Help Web. It contains detailed information on:

- Installation and upgrade of Diva Server drivers, configuration scenarios, and applications
- Diagnostic and testing utilities
- Basic issues, error messages and how to resolve them
- ‘How to’ guides and wizards

- Online training for ISDN, Diva Server API, and X.25 primarily 1st level technical support people, but much of the course is also suitable for a non-technical audience.

Visit our Help Web at www.eicon.com/support/ema.

Eicon Networks Customer Support

If the information on the Help Web was not sufficient to help you solve the problem, contact our Customer Support.

Customer Support may probably need:

- A debug trace (see Diva Server Diagnostics Online Help DivaTrace.chm).
- And a copy of your active configuration (see Diva Server Configuration Manager Online Help DSMain.chm).

See www.eicon.com/support/contact.asp for details on how to contact us.

Comments

If you wish to make comments about your Diva Server adapter or the corresponding software, address them by e-mail to: diva.server@eicon.com.